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CURRICULUM GUIDELINE FOR THE

Senior Division

GEOGRAPHY

1978

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Geography, Senior Division, 1978

This Senior Division geography guideline supersedes Curriculum R.P.7, 1962 and Geography S.7, 1968 and becomes the basis for programs in geography in the Senior Division of secondary school. The new guideline contains significant modifications from previous guidelines; these modifications reflect advances in knowledge about the nature of the physical and human world as well as recent trends in the teaching of geography.

A section entitled "The Nature of Geographic Education" provides a rationale for the geographic education of students, especially in the area of social and environmental studies.

The aims of geographic education in the Senior Division grow out of the goals of education for Ontario as expressed in The Formative Years and in Circular H.S.1. The guideline provides for continuity with Intermediate Division geography courses, in that a breadth of coverage of world geography is entailed. Individual course outlines emphasize the development of skills and the formation of attitudes and values, as well as the acquisition of knowledge (both facts and concepts).

Emphasis is placed on the dynamic nature of geography, its applicability to the issues and interests of everyday life, and the contribution that can be made to a school course by people and activities outside the classroom.

To assist local educators in the implementation of the guideline, sections have been included on developing a Senior geography program, designing a course of study, and evaluation. An annotated bibliography is also included.

Three outlines are provided from which courses leading to credit towards a Secondary School Graduation Diploma may be developed. The outlines allow development of courses at a number of levels of difficulty. Two additional outlines give frameworks for developing courses of study at the Secondary School Honour Graduation Diploma level.

Each course outline states the rationale, aims, and course content requirements for locally developed courses. In addition, suggestions are included that are intended to assist in organizing courses.

The implementation of this guideline will entail a complete review of the school's present course offerings in Senior geography, followed by the modification of existing courses and the development of new courses as necessary.

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The planning of courses of study to meet the needs, interests, and abilities of individual groups of students is a local responsibility. Work should be started as soon as possible in order that all courses reflect the aims of this guideline by September 1980.

John W. Storey

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Director
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INTRODUCTION

This guideline supersedes the previous geography guidelines *Curriculum RP. 7, 1962,* and *Curriculum S. 7, 1968*; it provides guidance for the organization of courses of study in geography in the Senior Division of schools in Ontario, including credit courses for the Secondary School Honour Graduation Diploma.

The guideline is a pattern for planning as opposed to a plan for teaching. The various sections are designed to give help and direction to teachers who will be planning detailed courses of study. "The Nature of Geographic Education" gives reasons for offering geography in the school curriculum. "Developing a Senior Geography Program" outlines the kinds of learning that should be taking place in Senior Division courses. Five outlines are given from which courses may be developed, and suggestions are made for the evaluation both of student achievement and the program.

Each course outline in this document contains a rationale, aims for the course, an outline of the basic course content, and suggestions for organizing a course of study. The outlines are intended to assist curriculum planners in achieving the appropriate breadth of study for Senior Division courses, to allow for a varied selection of topics, and to encourage a wide range of strategies and activities in order to challenge students.

Note: Schools may continue to develop Senior Division courses based on the Ministry guidelines entitled *Urban Studies, 1971, Environmental Science, 1973,* and *Geology, RP. 47, 1963.*

The development of detailed courses of study, at the appropriate level of difficulty, is a local responsibility.

The following outlines may be used to develop courses for credit towards the Secondary School Graduation Diploma:

- Studies in Physical Geography S61-071
- Studies in Human Geography S61-072
- Studies in Regional Geography S61-073

Note: A student may earn a maximum of one credit from each outline.

The following outlines may be used to develop courses for credit towards the Secondary School Honour Graduation Diploma:

- Canada: Geographical Realities H61-074
- World Issues: Geographical Interpretations H61-075

Note: A student may earn a maximum of one credit from each outline.

It is expected that this guideline will foster a complete review of existing geography courses and that this review will lead, where necessary, to appropriate changes in existing courses to bring them within the rationale of this guideline.

THE NATURE OF GEOGRAPHIC EDUCATION

In many ways virtually everyone is a practising geographer. In order to organize a shopping trip, to plan a vacation, to decide on which home to buy, or to perform a host of other tasks that involve movement, choice among alternatives, and decision-making, we must possess information about the world around us, arrange it in some logical order, and use the information to decide on a course of action. In following these basic steps, we will consider a number of the many variables involved in geographic studies, such as knowledge of places, location, distances, technology, and the use of resources. Often without consciously thinking about it, we use geographic skills, techniques, and concepts.

Similarly, when we act as part of a larger society, we make decisions that have geographic dimensions. The purchase of an automobile, for example, may be viewed as an economic decision, but its effects are manifest in the extraction of ore from the earth's crust and in the demand for parking space in a city. The political act of voting for a candidate who supports legislation to protect wilderness areas reflects a value placed on natural landscapes. These and countless other actions by individuals ultimately determine the ways in which the earth is used to support human life. It follows from this that the quality of the future depends upon our ability to make rational choices based on sound intellectual and moral reasoning.

STUDIES IN GEOGRAPHY

Studies in geography are rooted in the human need to know about the nature of the earth and its capacity to support human life, and to understand the ways in which skills and knowledge are applied to use the earth's potential.

This need to know and to explain is not only inherent in human nature but also necessary if we are to rely on the earth to sustain our existence into the future. Throughout recorded history there have been people who have gathered knowledge about the earth and its occupants for study. As centuries of migration, exploration, discovery, occupance, and modification of much of the earth's surface took place, this accumulated knowledge was organized and related to provide an ever clearer understanding of human/earth relationships. Thus, in many respects, there have always been geographers.

The emergence of geographic study as an academic discipline and school subject, however, is relatively recent. Furthermore, studies in geography are not easily described. In searching for explanations, geographic studies include both human and physical elements, employ a wide variety of investigative techniques and procedures, study phenomena at a number of scales, borrow knowledge and principles from many sources, combine variables whose relative importance may be difficult to measure, and present information in patterns and combinations that may raise as many questions as they answer. The definitions, procedures, content, and boundaries that are characteristic of other disciplines or subjects are usually missing here. Often there is a difficulty in determining the content and focus that are most appropriate for the study of any given area or situation. As a consequence, even the most rigorous studies may lead to conclusions that can only be tentative in nature.

None of the difficulties inherent in comprehending the nature of human relationships with the earth, however, reduces the need to do so. In the past, seemingly unlimited space and resources allowed humans the luxury of such courses of action as the settlement of unoccupied lands; the harvest of virgin resources; the exploitation of abundant, cheap energy supplies; the use of substitutes; and the application of expanded scientific knowledge to the production of materials and commodities. Many of these traditional courses of action are no longer open. On a world scale, increasing population, rising economic expectations, and pressing environmental issues make many contemporary geographic questions universal in scope. On a local scale, the demands for adequate shelter, food, high-quality water and air, material goods, mobility, and artistic and recreational opportunities within a limited space make it necessary to cope with the present and to plan for the future using creative yet responsible strategies. This requires a solid base of knowledge derived from both the physical and social sciences and from practical experience in appraising the consequences of alternative courses of action. Studies in geography should assist students to look for principles that have universal scope and application. To balance this, however, topics must be investigated in sufficient depth to recognize the limitations of generalizations in their application to specific areas and issues.

Despite its short history as a school subject and its lack of a clearly defined body of content, geographic education has evolved a number of traditions which provide direction and focus for studies. These traditions and the techniques they employ have been refined over time and serve as useful guides in the organization of both units and courses. The four prominent traditions comprise:*

- studies of the physical environment, including the natural forces that act to shape the landscape and support life of all kinds;
- studies of areas or regions and the human and physical factors that give character to places;
- studies of locations and distributions, that is, patterns of human and natural phenomena and where and why they are so located; and
- studies of how people interact with their environment, including the influence of an environment on human activities and, conversely, the effects of human activities on environments.

Each tradition in geographical study is reflected in this guideline, and studies related to these are fundamental to all geographic education.

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*William D. Pattison, "The Four Traditions of Geography", *The Journal of Geography* 63 (May 1964) : 211-16.

GEOGRAPHY IN THE SCHOOL CURRICULUM

Geography deals with area, pattern, and interrelationship. The study of geography in school contributes to the young person's understanding of the physical character of the earth's surface, the human occupance and use of the earth, the spatial organization of societies, and maps and their uses. The student of geography should have an opportunity to gain experience with the various modes of inquiry that are used in the areas of both natural and social sciences, and to become aware of the social, political and ethical questions associated with human use of the land and variations in the land's wealth.

Concepts. Geographical studies should aim to help students acquire a familiarity with and a degree of mastery of the ideas that characterize the distinctive conceptual framework of the subject. This framework consists of a few major concepts which are, in turn, supported by a large number of ancillary concepts. The ideas that develop during the study of geography will relate to one or more of the following major concepts, which have already been outlined in the geography guideline for the Intermediate Division: the support of life, people as choosers, constant change, spatial interaction, areal differentiation, resources, regionalism, and a global viewpoint.

This general framework, combined with a selection of concepts that are specific to a particular course, should be the basis for planning school geography courses. Facts can be organized around the selected concepts, and generalizations about them will emerge. The important concepts are introduced in the early stages of geographic study and are subsequently refined and developed. As understanding of a concept develops, increasingly sophisticated generalizations will emerge. The ability to organize the factual information of specific cases around useful concepts, and subsequently to make intelligent generalizations, is central to the growth of geographical understanding.

Skills. The skills that are practised and applied in geography range from those taught more directly in other school subjects to those that are central to geographic studies. It is important to stress the skill of using language well in order to write an orderly narrative, to present oral and written arguments, and to summarize the main points of a study. A variety of basic mathematical skills are also important to geographical studies, as students will use scales, interpret climatic data, and process numerical data in the course of their studies.

More specific to geography, students will have to observe, record, and classify information that has been obtained at first-hand or from secondary sources, and to develop problem-solving techniques in order to make good use of that information. Much spatial information can only be understood or communicated by the use of graphic, photographic, and cartographic methods. "Graphicacy", a term that subsumes all these modes of communication, is more central to geography than to any other school subject. The interpreting of all kinds of graphic information, the locating of oneself accurately on the earth, and the reading of maps at a variety of levels (from decoding to sophisticated interpretation) are not only critical to the understanding of geographical ideas but useful to the general education of all students.

Content. The factual content of a course in geography will be determined in part by the need to base the development of concepts and skills on the study of appropriate and relevant examples. It follows that courses in geography should deal mainly with the contemporary world. No course of study should remain static for too long: the choice and treatment of specific content should reflect an awareness both of the changing world scene and the attempts by the world's people to comprehend and respond to these changes. In the process, students should extend their knowledge of specific places and topics from the local area to include the home country and a range of localities in other parts of the world. Study areas should be selected to broaden the student's knowledge of different cultures, environments, political systems, and stages of technological development.

Attitudes. Geographical knowledge and understanding should lead to an interest in, and concern for, present-day problems, whether they be local, national, or global. This should include an informed concern for the environment and reasonable judgements of the need for conservation of both scenery and resources. Geographic studies should also encourage enlightened insights into the reasons for the conflicts between the environment and human needs and wants.

These general statements about the place of geography in the school curriculum are readily applicable to the achievement of the four basic goals of education in Ontario. Each student should be provided with opportunities:

– to acquire the basic skills fundamental to his or her continuing education;

– to develop and maintain confidence and a sense of self-worth;

– to gain the knowledge and acquire the attitudes that he or she needs for active participation in Canadian society;

– to develop the moral and aesthetic sensitivity necessary for a complete and responsible life.

In the Senior Division, geographic education should address itself to the fulfilment of these goals, placing particular emphasis on the student's ability to make rational and well-informed judgements on human occupance of the earth.

GEOGRAPHY IN THE SENIOR DIVISION

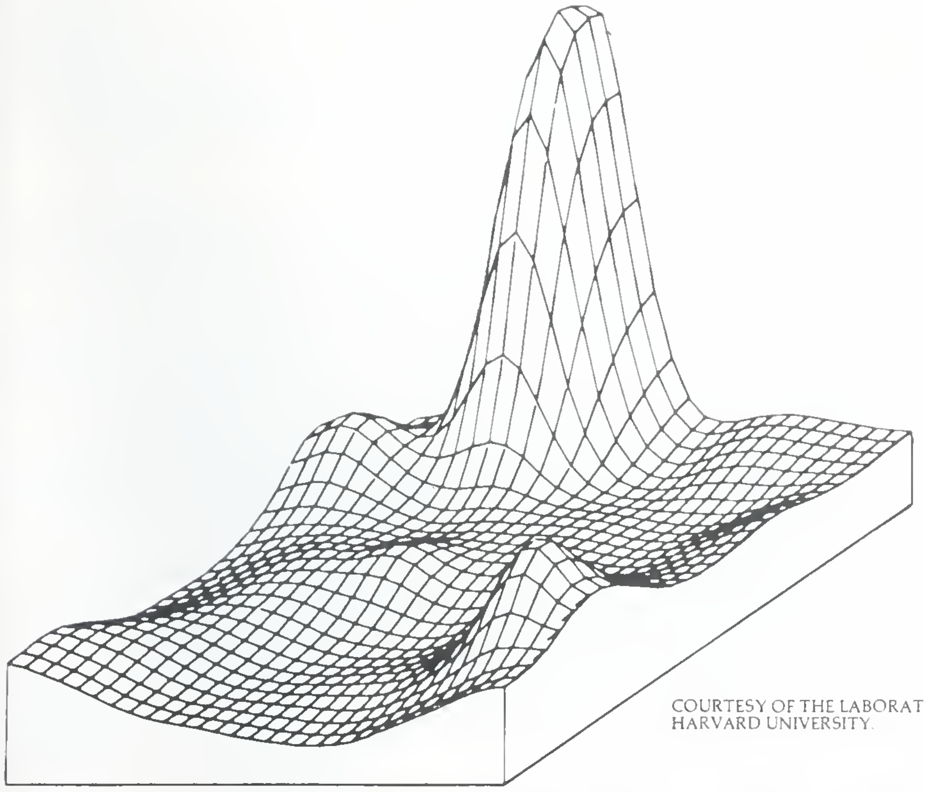
The study of geography as a discrete subject rather than as an integrated aspect of social and environmental studies begins in the Intermediate Division (Grades 7 to 10). The Intermediate program is designed to give students opportunities to become knowledgeable about the physical characteristics and human use of a significant percentage of the earth's major land masses. It includes a one-credit course dealing with significant aspects of the geography of Canada. In addition, studies of the local area at a variety of scales are an integral part of the total program.

In the process, students should gain some facility with the skills and techniques used in geographic studies. They are encouraged to practise and develop all of the kinds of skills outlined in the previous section. They should also be introduced to and start to refine the major concepts and organizing ideas of geographic education outlined above.

Students who choose to study geography in the Senior Division bring knowledge, skills, and attitudes that they have acquired from this and other disciplines. Their expanding intellectual and emotional development allows them to refine and enlarge upon developing concepts, to add to their conceptual framework, and to apply increasingly sophisticated techniques to the investigation and explanation of the world around them. Senior Division courses should build on this foundation in order to investigate a broad spectrum of ideas, to examine a wide range of content, and to encourage a variety of learning experiences. Geographic studies should be characterized by a systematic treatment of topics and an attempt to understand interrelationships.

The selection of relevant material is important. In recent years, issues such as population growth, energy supply, urbanization, Third World development, human settlements, and the resources of the sea have become world concerns. Topics related to these issues should be brought into the classroom in order that Senior students may understand them better. As well, where learning materials and techniques appropriate to the intellectual level of the students are available, they should be used to illuminate the issues. These include special-purpose maps, air photographs, satellite imagery, quantitative techniques, conference proceedings, journal articles, films, models, and slides. They may be used as the basis of information for units of study or as supplements to materials in textbooks.

Further guidance on the nature of studies in Senior Division geography is provided in a later section of this guideline.



COURTESY OF THE LABORATORY FOR COMPUTER GRAPHICS AND SPATIAL ANALYSIS, HARVARD UNIVERSITY.

STUDIES FOR THE SECONDARY SCHOOL GRADUATION DIPLOMA

The three course outlines in this section may all be used to develop credit courses at the Senior level. Each student may earn a maximum of one credit from each outline towards the Secondary School Graduation Diploma.

In devising Senior level courses, teachers should keep two factors in mind. First, students will have acquired a number of geographic skills in the compulsory courses at the Intermediate level. In addition to this background in geography, students are, in the Senior Division, considerably more mature than they were at an earlier age. Therefore, teachers are advised to consult the skill development sections of the Intermediate Division geography guideline and the section of this document entitled "Developing a Senior Geography Program". These sections will help them capitalize on the students' background in geography and on their increased capabilities in the application of skills.

The courses of study from the Intermediate Division will also suggest new ideas for topics to be studied at the Senior level. In most cases, topics or areas studied at the Intermediate level should be repeated only when they can achieve freshness through an in-depth treatment made possible by the students' increased maturity. Such in-depth topics, however, should be balanced by other areas of study that give the students as broad a knowledge of world geography as possible.

STUDIES IN PHYSICAL GEOGRAPHY S61-071

The earth can be described as a dynamic globe, moving in space and possessing physical characteristics that are capable of supporting many forms of life. A Senior Division course in physical geography should provide students with opportunities to examine in a systematic way the elements that compose the earth's structure and the interacting systems in land, sea, and air that support human life. Because the earth is dynamic, an understanding of its component systems is important in order to understand it in its entirety. Because people affect and are affected by the earth's systems as they seek to support themselves, it is also important for students to recognize the significance of the earth's physical characteristics to human life.

Students in the Senior Division will bring to this course knowledge, skills, and attitudes derived from many sources, including family and home, previous studies, the media, and direct observation of the world. As well, many Senior students bring with them a desire to systematize their learning, to find order and patterns in knowledge, and to develop concepts and principles around which knowledge can be organized and related. They are increasingly capable of analysing information presented in many forms, of synthesizing it to produce new patterns, and of visualizing the interaction of different systems. At a personal level, they are searching to define their own places in the world.

A course in physical geography should capitalize on these attributes in providing opportunities for students to develop coherent mental atlases of the patterns and processes that exist in the physical world.

Aims

Courses in physical geography should give students opportunities to:

- develop a conceptual framework for organizing information about the physical world;
- analyse systematically the physical properties of the biosphere (the lithosphere, the atmosphere, and the hydrosphere);
- identify patterns that reveal the existence of order in the physical and biotic world;
- understand processes that help explain the existence of order in the physical and biotic world;
- evaluate theories that attempt to explain the properties of, and forces acting within, the biosphere;
- evaluate the effects of specific components of the biosphere on human life in selected locations;
- evaluate the effects of human activity on the biosphere in selected locations;
- practise and improve skills in field work and in the use of the tools and techniques of geographic investigation;
- examine critically a variety of attitudes to the physical world: for example, people as users, exploiters, managers, conservers, or conquerors of their environment;
- reaffirm or revise their own attitudes and behaviour towards the physical and biotic world.

Course Content

Components of the Biosphere

To gain an overview of the natural environment on a global scale, it is necessary to develop a perspective on the components of the biosphere – the lithosphere on which we live, the atmosphere in which we breathe, and the vast hydrosphere on which we depend for our water needs.

In order to develop the proper perspective, it will be necessary to study basic information on topics such as the following:

- the elements of the biosphere – their properties and their significance for the survival of life;
- the patterns and distribution of land and sea;
- the critical balances maintained by natural cycles such as the hydrologic cycle and energy flow;
- some effects of human activities within the biosphere.

Energy in Nature

All movement or growth in the biosphere requires energy in some form. Because of this, study of the forms, sources, and functions of energy could be an introductory unit, a concluding unit, or an integral part of all units of study. Studies should include a consideration of the following:

- the importance of the sun as an energy source in nature;
- forms of energy in nature;
- the function of energy in a variety of processes such as plant growth and decay, global circulatory systems, crustal movement of the earth, and the formation of fossil fuels.

Tectonic Forces

Although changes are barely perceptible over most of the earth, over millions of years great earth-building forces have changed the surface of the earth. Earthquakes and volcanic activity illustrate that the forces creating relief features continue to act in the present.

Studies that help to relate tectonic activity to existing patterns of relief should include basic information on topics such as the following:

- the origin, composition, and internal structure of the earth;
- theories related to earth formation and plate tectonics;
- the nature, variety and significance of earth-building forces – including diastrophism and volcanism;
- geological time;
- the distribution of major relief features, ocean basins, and continental platforms;
- human response to tectonic features and forces.

Gradational Forces

In opposition to the tectonic forces, gradation, through its erosive agents of wind, water, ice, and waves, works to reduce the earth's lithosphere to a uniform surface.

Since this area of study could occupy extensive periods of time if all agents and processes were treated, teachers are encouraged to be selective in the number and depth of the studies undertaken. These studies might involve individual and group work to develop an understanding of the basic processes that act to create depositional features. The following considerations will be useful:

- Degradation and aggradation may be used as a conceptual framework so that a systematic organization of knowledge may be developed regarding the erosion and deposition of materials over the surface of the earth.
- The geomorphic cycle may be used as a basis to establish ideas regarding the processes of landform development.
- Students can consider the work of gradational agents such as surface and ground water, wave action, wind, ice, weathering, and gravity to produce representative landforms.
- The beneficial and detrimental aspects of gradational forces can be considered.
- People can be examined as gradational agents.

Climate

Weather and climate have profound influences on individual lives. On a global scale, climate is a major determinant of the distribution of plant species. Its significance to human life may be judged by the far-reaching effects that follow a period of below-average precipitation in many parts of the world. Studies should include information such as the following:

- the global patterns of temperature, pressure, winds, and precipitation;
- patterns of climatic regions, including one system of climatic classification;
- the basic physical elements that cause day-to-day changes in the weather;
- human responses to climatic conditions and attempts to modify and control the weather; and
- the effects of human activities on the atmosphere.

Water

Water has always been an indispensable resource for all forms of life. In the twentieth century, the pressure on resources of all kinds has led to intensive study of the use of water in all parts of the world. Water worlds include the oceans and seas, freshwater lakes and rivers, ground water, and fossil water. Studies should include:

- the hydrologic cycle;
- the magnitude, distribution, and significance of the world's oceans and seas;
- the structure and configuration of ocean basins;
- the causes and effects of the circulatory systems of the world's oceans;
- the physical and biotic characteristics of representative sections of the world's oceans;
- the magnitude, distribution, and significance of the earth's fresh-water supplies;
- the magnitude, distribution, and significance of the earth's subsurface water supplies;
- the significance of water to biotic life;
- the significance of water in the distribution of human population.

Forms of Life

Plant and animal life exist wherever the environment permits. Large-scale patterns of vegetation are distributed over the globe and provide habitats for distinctive animal species. The patterns are significant because each environment provides opportunities and constraints for human occupance. Studies of forms of life should include:

- the pattern of major vegetation regions in the world;
- relationships among climate, vegetation, fauna, and soils;
- processes by which various forms of plant and animal life have been dispersed and modified;
- ecological relationships within distinctive natural environments (ecosystems);
- the effects of human activities on selected natural environments.

Soils

Soils are highly organized physical, biological, and chemical complexes which play the fundamental role of supporting vegetable life, thereby providing sustenance for both animals and people. As a result of their studies, students should be more aware of information related to the following:

- the nature and characteristics of soils;
- the characteristics and occurrence of significant soil types;
- types of soil parent material;
- factors contributing to the texture and quality of soils;
- processes of soil formation;
- relationships among climate, vegetation, and soils;
- the significance of soils to human life.

Alternative Approaches

Some planners may prefer to meet the aims of this outline by organizing a series of units that integrate basic ideas about the physical elements of geography. An understanding of basic principles and processes could be provided by referring to them at appropriate times during the study of areas, issues, themes, or topics. The following list of topics may assist teachers to select and organize content in alternative ways. Where these are further refined to provide clear direction and well-defined tasks, the ideas may also provide appropriate material for studies by individual students or groups.

- Humid areas and the work of water
- Dry areas and the work of the wind
- Littorals
- Limitations on the production of food
- Physical disasters
- Ideal climates
- Stability in nature
- Prediction techniques for natural phenomena
- Measuring, managing, and harvesting the products of natural ecosystems
- Ecosystems and population limits
- The International Geophysical Decade
- Satellites and remote sensing in gathering data
- Diffusion, dispersal, and succession of species
- Adaptation, modification, and intervention in ecosystems
- Legacy of the Ice Age in North America
- Theories of continental drift
- The effects of climatic change on ecosystems
- Distinctive biomes
- Preserving wilderness areas
- Persistent substances in nature

Organizing a Course of Study

In organizing a course of study, curriculum planners should review a number of important considerations, some of which are presented here.

Courses should be developed as a series of units, each of which develops a number of basic ideas. The units should proceed in a logical sequence, and each should relate to the overall aims of the course.

One desired outcome of studies in physical geography is an increased student awareness of order and pattern in the physical world. Although the physical aspects of the environment are not a static framework and homogeneity is not common over large areas of the earth's surface, in the context of any unit students should be able to:

- find evidence of the existence of an order or pattern;
- gain knowledge about the instrumentation used to collect data;
- develop or become knowledgeable about principles and theories that help to explain order or pattern;
- test the validity of principles and theories by gathering evidence that supports or refutes them.

Students should recognize as well that human occupance normally complicates the natural order.

Studies in physical geography take many of their basic facts from physical and natural sciences such as geology, geomorphology, climatology, meteorology, biology, and pedology. This knowledge is organized and related to help explain the many and varied physical processes that create and modify landscapes. Care should be taken that excessive time is not devoted to studies of such sciences in isolation. Instead, students should come to see how knowledge derived from these sources helps to explain the processes, patterns, and distributions that result from many variables acting simultaneously. The focus should be on the synthesis of relevant information from these sources in order to explain the effects of the variables in combination. The human dimension is important because people affect and are affected by the physical environment.

Teachers are encouraged to include a variety of alternative teaching strategies as they organize units of study. The foregoing suggests two broad approaches to studies in physical geography. One is a systematic study of the physical processes at work in the biosphere and their significance to human activity. The other approach begins with particular issues, questions, or problems that are suggested by human attempts to make use of the earth; in the course of the study, these are related to the underlying physical processes. Teachers can utilize both of these basic approaches and many variations of them to ensure that there is variety in classroom activities, and that the physical world and its significance to human activity are related.

It is intended that students should gain an overview of the earth and its component systems. Eight broad areas of study have been included in the content for this course. Course planners should ensure that adequate time is devoted to each so that students can gain a comprehensive view of the physical world. This does not mean that each broad area must be the basis for an individual unit of study. Correlations among climate, vegetation, and soils, for example, may make it desirable to study these within one or more ecosystems in order to establish the relationship of each component to the others. Planners should design their own series of units and strategies in order to achieve the aims of the course. The approaches to content and depth of study chosen should be appropriate to the students for whom the course is intended.

STUDIES IN HUMAN GEOGRAPHY S61-072

Human geography is about people – people developing a distinctive way of life and, in the process, making their imprint on the surface of the earth. The challenge of human geography is that the list of human imprints on the earth is almost endless and constantly changing: a boundary is relocated and patterns of spatial interaction are drastically altered; a new factory covers 10 ha of good farmland and mineral deposits 800 km away are developed to provide it with raw materials; an offshore well blows wild, and 30 km of white sandy beach and 10 000 sea-birds are blackened with oil; a city redevelops its downtore core, and new buildings change both the skyline and the micro-climate.

Human geography is a systematic study of the areal manifestations of people's activity on the surface of the earth. The basic needs of people include food and shelter, which must be provided in some way by the environment. Few humans, however, are content with the gratification of mere basic needs. History records ever-increasing expectations for higher standards of living in such areas as clothing, comfort, convenience, mobility, communication, health care, personal services, and forms of creative expression. Moreover, it is characteristic of human groups to develop a strong bond with the territory they occupy, to establish its boundaries, to organize its space and resources, and usually to exclude outsiders. The pursuit of these goals has resulted in the development of complex political institutions which control many aspects of life including such things as the organization of agriculture and industry, the location of transportation facilities, the types of settlements that may be developed, and the amount of pollution that may be released into the environment.

In the process of establishing themselves in their particular space on the globe, many human groups have tended to develop a cultural homogeneity based on language, religion, racial characteristics, education systems, and other such features that give a group a common identity and coherence.

The student of human geography studies the characteristics of human groups, the ways in which they interact with their environment, and their imprints on the surface of the earth.

Aims

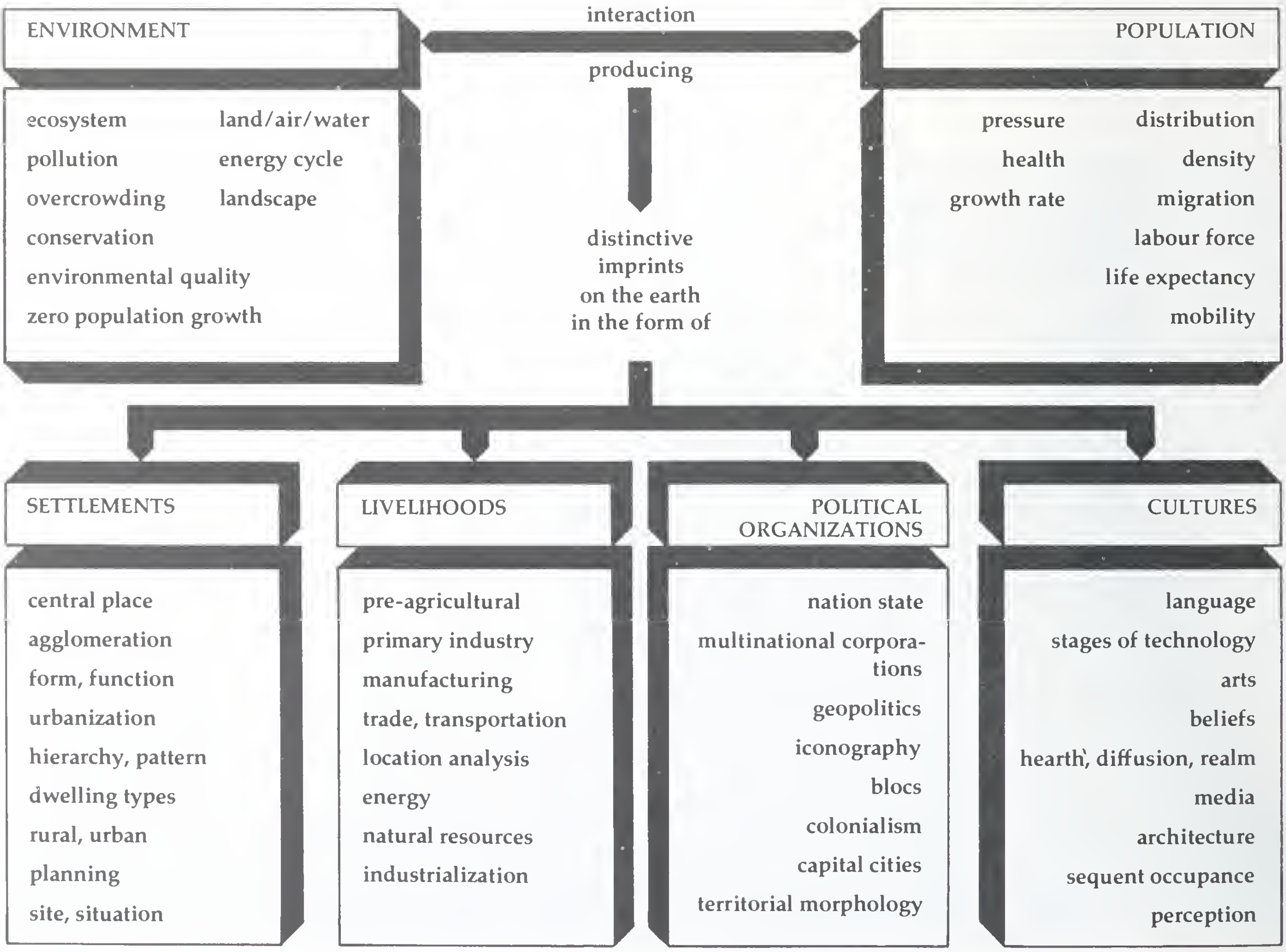
Courses in human geography should give students opportunities to:

- recognize that all human use of the earth is subject to the opportunities provided and the constraints imposed by the natural environment;
- examine a selection of the dynamic processes by which people occupy and organize the earth's surface;
- develop criteria for categorizing the distinctive imprints that various human groups make on their area of the earth;
- account for differences in the ways of life that can be identified from one part of the world to another; and
- evaluate various environments and ways of life (including their own) with the help of increased factual knowledge and advanced intellectual skills.

Course Content

Every course in human geography will deal with a number of key elements, the relationships among them, and the patterns that emerge from their interaction. For the purposes of Senior Division courses, six such elements have been defined. These are shown on the diagram below, accompanied by some significant ancillary concepts.

THE ELEMENTS OF HUMAN GEOGRAPHY



People occupy space on the earth's surface and use that space to sustain their lives. Thus, the two basic elements present in all studies are:

population – the number and distribution of people, their movement, and the characteristics they develop as they organize themselves in a particular location;

environment – the critical background to all human use of the earth, one that is never static and that may be drastically modified by the people who use it.

Superficially, it may appear that people are the dynamic force and environment a passive medium in the relationship; however, it is increasingly clear (to scientists and informed citizens) that this is far from the case. As people interact with their environment to meet basic needs, the environment responds by changing in accordance with physical principles. It is important, therefore, that students develop an understanding not only of the effects that human activity has on the earth, but also of the ways in which the earth responds to human activity.

The interaction between these two basic elements, through processes such as diffusion or industrialization, results in the distinctive imprints that have been classified as follows:

settlements – the way people organize their living space, from the widely spaced settlements of a desert to the huge conurbations of the industrial regions;

livelihoods – the way people make a living and the imprint that this makes on the surface of the earth;

political organizations – the systems that people devise for sharing space and its resources, and for deciding how they shall be used;

cultures – the accumulated heritage of a people including their perceptions of the world, their beliefs, their stage of technology, and the values they cherish.

Obviously none of these elements exists independently, and an examination of the interrelationships among them will develop an understanding of the following ideas and processes.

Opportunities and Constraints of the Environment

The distribution of the world's people suggests that while the range of "livable" environments is very great, some are more desirable than others. There are, of course, practical considerations of the ability of the environment to support large populations – soil, water, and thermal conditions for food production – and of the availability of useful materials to provide livelihoods for large numbers of people. However, technological innovation and human perception have extended the range of both "desirable" and "livable" environments.

Inevitably, however, there are constraints. Every area on the earth's surface has disadvantages as well as advantages. To improve a lifestyle in warm sunny environments, it may be necessary to incur high costs for air conditioning or water supplies. To exploit the resources of cold or moist environments, even heavier investment may be required in building and energy costs. In all cases, there are environmental costs for which an acceptable level must be established. Students must learn to identify these constraints and to recognize them as environmental *influences* rather than *controls.*

Dynamic Processes

People and their environments are constantly both initiating and experiencing processes that change the nature of the human imprints on the surface of the earth. Corporate decision-making is an example of a dynamic process that can have implications for human geography. People exercise choice in terms of comparative advantage. The factory that relocates in the American South from a more northerly climate may have added transportation costs, but land for expansion and modernization may be cheaper and the labour force may be easier to "keep happy" in the more moderate climate. The human imprint on the landscape is thus changed in two places. Students should have the opportunity to examine some of these dynamic processes and to investigate relevant examples. Some of the most obvious processes are spatial interaction, technological innovation, diffusion, migration, natural cycles, industrialization, sequent occupance, urbanization, colonial development, and political expansion.

Description and Explanation of Human Imprints

Evidence of human activities can be found almost everywhere on the earth's surface. The nature of the imprint tells something about the people who made it. For instance, farm settlement in Southern Ontario has been characterized by relatively small, rectangular fields marked out by sturdy fences. The dispersed farmsteads contrast with the linear pattern of rural settlement in Quebec and may be examined as a cultural preference. The fences, too, may have been the result of cultural preference, or merely a practical need to contain livestock. They may also say something about the environment in which the settlement took place: a stump fence almost certainly testifies to the struggle to clear the land of its forest cover, while a line of stones represents hours of backbreaking labour to prepare glacial till for the cultivation of crops. Such factual observations of human imprints permit the formulation of concepts about the results of human activity on a rural landscape. Students should have opportunities to practise observation, in the field and from maps and photographs, and to organize knowledge to form concepts that help explain the distinctive imprints that they are describing.

Ways of Life

The development of the students' ability to account for ways of life – especially those that are markedly different from their own – must be a central aim of every course in human geography. The way of life of a people is a complex mixture of environmental and cultural heritage, political organization, numbers of people, settlement patterns, and ways of making a livelihood. The number of facts to be interrelated could become overwhelming. However, human geography provides a framework of elements by which factors may be organized. Students must then use the organization to account for varying ways of life in an objective, non-judgemental, and useful way.

Organizing a Course of Study

A course organized around the six content elements would be the basis of a systematic study of human geography. However, such a study would be a formidable undertaking. Planners should consider the advantages of selecting a particular focus – economic, cultural, or environmental.* The selection of a focus will enable planners to develop courses that allow for an in-depth treatment of content material and the acquisition and practice of geographic skills consistent with the expectations for Senior-level study.

The selection of course content will be governed by the conceptual framework that is chosen to be the major focus for a course. The development of this framework will involve course planners in the task of selecting organizing concepts. Most of these will be directly related to the primary focus. However, in each topic there will be opportunities to develop ideas that are related more specifically to other elements of human geography.

Economic Focus

A course that takes as its focus "livelihoods" (economic geography) will use as its central organizing principles those concepts and processes associated with economic activity. Other elements of human geography will be examined in the context of economic activity. Thus, a unit designed to develop the concept of primary industry could involve the consideration of conservation practices (environment) and the growth of distinctive types of settlement such as company towns (settlements). To develop a thorough understanding of primary industry, one would need the help of such concepts as availability of labour force (population), the operation of multinational corporations (politics), and stages of technological development (culture). Such a course could be organized by using the following topics:

1. Types of economic activity, their distribution, and characteristics:

– subsistence activities, extensive and intensive; the effect of technological change on subsistence economies;

– primary or extractive commercial activity, food and non-food crops, animal husbandry, mineral resources, and sources of energy; systems for the allocation of scarce resources; resource management; conservation and the political implications of resource development;

– manufacturing, cottage industries, assembly line and complex design operations; location analysis and theory; comparative advantage; effects on the physical environment; the relationship between industrialization and the standard of living and quality of life;

– tertiary activities, trade, transportation, financial and professional services, education, entertainment, government; specialization of work; multinational corporations; trade agreements.

2. Central places and their relationship to economic activities:

– agglomeration; reasons behind the tendency to cluster and resulting spatial patterns;

– site, situation, function, sphere of influence;

– relationships between the range of tertiary activities and the size of central places; hierarchy and pattern; growth of megalopoli;

– physical and cultural implications of the process of agglomeration; disruption of environmental equilibrium; population densities, population pressure, physical and mental health, age structure, birth rates.

3. Contemporary economic issues:

– the effects of increasing world demand for raw materials such as petroleum, iron ore, fibres, asbestos, potash, coffee, bauxite;

– the concentration of economic power in a few hands;

– the influence of large corporations on small nations;

– the effects of shortages in important commodities such as oil, coffee, sugar, cocoa;

– the effects on individuals of increasing specialization of tasks;

– the pressure on land because of competing uses;

– the effects of the increasing interdependence of world economies.

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*The Ministry guideline entitled *Urban Studies, 1971* provides for the organization of a course in the area of human geography, with a special focus on settlements.

Cultural Focus

For a course that focuses on *cultural* geography, the organizing concepts would be selected from the elements "cultures", "population", and "political organizations". The other essential elements would be studied in the context of the topics selected to develop these organizing concepts. Thus, a unit designed to develop the concept of sequent occupance in a selected area might involve considerations of overcrowding (environment), mobility (population), economic opportunity (livelihoods), and colonialism (political organization). Such a course could be organized around the following themes:

1. The human landscape as evidence of the values, economic and political organization, and technological capabilities of the people who use the area:

– indications of cultural identity such as land use, spatial organization, architecture, transportation and communication links;

– the processes by which an area assumes an identity from the culture of its inhabitants;

– the evolution of a cultural identity over time, including sequent occupance.

2. Processes of diffusion and their effects on people and the environment:

– causes of migration and the effects of migrants on receiving areas;

– the significance of the physical environment, such as mountain barriers, in the diffusion of ideas;

– the effects of modern technology on processes of diffusion;

– the spread of knowledge, ideas, beliefs, inventions, and such things as plant species and diseases;

– the effects of one culture on another in areas such as political organization and economic systems.

3. Race, language, and religion as factors in the development of the human landscape:

– definition of the terms;

– places of origin of major races, languages, and religions, and their present distribution;

– how each can shape the social, spatial, and economic patterns within an area;

– their changing roles in the contemporary world.

4. Cultural identity:

– factors that contribute to a composite cultural identity and the part played by territory in its development;

– cultural homogeneity compared with multiculturalism; the process of acculturation.

5. Political activity:

– examination of a variety of organizations, the tribe, the nation state, the empire, the "bloc", and their effects on the use of the earth;

– the interrelationships between political organization and cultural factors within selected areas, especially those that create tension;

– present trends — the drive of small groups for political autonomy and the contrary trend towards large political units.

Environmental Focus

Another possible approach to a course in human geography would be an investigation of the human use of the earth, in which case the focus would be on the basic elements of *environment* and *population*. Such a course could be organized around the following topics:

1. Environmental variation:

- basic factors of terrain, soil, atmosphere conditions, and water as criteria for identifying natural environments;

- spatial distributions of the earth's physical environments;

- the tolerances of ecosystems to changes in their web of interrelated processes;

- relationships between population distributions and environmental conditions.

2. Resources for people:

- the methods used by past and present societies to meet human needs for food, shelter, and an acceptable standard of living;

- environmental (air/land/water) and economic resources and their adequacy in meeting the needs of all the world's people;

- the significance of energy flows in the development and maintenance of natural landscapes and environments created by people;

- applications of scientific principles and technological advances in making use of natural resources and conserving the environment.

3. Effects of human activity on the environment:

- the characteristics of environments that have been significantly modified to meet human needs such as agricultural lands, industrial regions, and urban areas;

- the consequences of increasing population and rising economic expectations for natural environments;

- human landscapes as spatial reflections of a society's philosophy and values in modifying the natural environment for human needs and wants.

4. Quality of life:

- the effects of modified environments on the quality of human life;

- the role of political organizations – local, national, and international – in determining the human use of the earth;

- the opportunities and the constraints that different environments present to humans who have aspirations to create an acceptable way of life;

- implications for the future of present trends in the human use of the earth.

Whatever focus is selected, teachers will be guided in their choice of ancillary concepts and topics for study by the need to accomplish the five basic aims of human geography courses and the essential learnings outlined in the section on course content.

STUDIES IN REGIONAL GEOGRAPHY S61-073

Much of the development of geography as a discipline for describing and explaining the characteristics of the earth has been based on attempts to identify the unique character of the world's places. The field of regional geography studies the interaction of specific human populations with their particular geographic locations. Geography studies place because it is an important factor in human affairs. One important expression of the civilization of any group of people is its achievements in adjusting itself to its environment.

Regional studies have had wide acceptance as part of the geography program in Ontario schools. They have been based essentially on a three-part rationale. In the first place, regional studies add significantly to the general knowledge of students. Second, the integration of the facts of place in order to understand the interactions that occur requires the skills of analysing, determining relationships, synthesizing, and generalizing. Third, students gradually develop a sense of place that gives them a fuller understanding of the differences that are evident from place to place.

This course differs from those in the Intermediate Division in that students should themselves be searching for and delimiting an areal pattern, a pattern that helps them to distinguish differences from place to place, to see that similarities between regions are sometimes more significant than differences, and to recognize essential connections between places.

Aims

Courses in regional geography should give students opportunities to:

- add to their knowledge of the world by analysing the interaction between populations and their environments;
- practise skills of interpretation by using a wide variety of raw data, from a description of a place found in literature to the more traditional types of data such as maps and statistics;
- evaluate the significance of the physical background in determining the character of a region;
- recognize the influence of social, political, economic, and cultural factors on the development of regions;
- develop the synthesizing skills necessary to interrelate the different factors that combine to give a region its identity;
- test the validity of the criteria that they or others select to separate a region from its neighbours;
- develop an understanding of the individuality of each region and an acceptance of the differences from place to place;
- appreciate the advantages and difficulties that regional differences give rise to in the global village.

Course Content

A course will consist of the study of regions selected from at least three continents and will include the development of certain major concepts. While the degree of abstraction and the amount of supporting detail will vary according to the abilities of the students, all of the following major understandings about regions should be developed.

Regional Character

To develop an understanding of the character of a region, students should analyse and examine significant variables that make up a region. Physical, cultural, and economic factors will be isolated and studied. Relationships among variables will be established, and this process should lead to a synthesis of the multitude of facts that have been acquired. Some variables will emerge as more significant than others in establishing a holistic view. Thus, a student who wishes to tell what the Caribbean region is like must have not only an overall picture in his or her mind, but also enough knowledge and understanding of the area to be able to select those significant aspects that will give the listener an accurate holistic view. Thus, at intervals throughout the course, students should be given practice in making their own generalizations that reveal a holistic view and that are based on analysis, synthesis, and informed judgement.

Regional Type

Regions are defined for specific purposes, and the unique quality of a region will be determined to some extent by the purpose of the person defining the region. A general, or single-factor region, such as the Corn Belt or the subarctic region, emerges because of a dominant characteristic. A functional region such as a milkshed or a school area is defined to delimit a specific activity or occurrence. A traditional region, such as the Little Clay Belt or the Great Plains, has many homogeneous features. Studies in this course should be selected to illustrate a variety of types of regions.

Boundaries and Limits

In any study of regions, we are faced with the challenge of drawing a line between one relatively homogeneous area and another. Some boundaries, such as the western edge of the Great Plains, are simple and easily drawn; others, like the eastern edge of the Great Plains, are much more complex and difficult to establish. Some act as barriers, while others, such as the Rhine River, encourage interaction. Cultural boundaries may not match political boundaries, as in the case of French-speaking Canada and Quebec. On the other hand, the boundaries between India and Pakistan were drawn in an attempt to establish boundaries between Hindus and Moslems.

Students should develop an increasing awareness of the problems of delimiting regions.

Regional Organization

Transportation and communication networks help to bind a region together and thus become major determinants of its character. Without the ability of its peoples to understand one another's language, Scandinavia would lose much of its regional character. The Golden Horseshoe (or Wishbone) is a region at least partly defined by transportation networks.

In some cases, it is connections with other regions rather than internal communications that are the dominant influence. For example, the Muskoka-Haliburton area has developed a particular character as a result of improved highway connections with the Toronto area. Students might inquire to what extent transportation networks have influenced the boundaries and identity of a region or whether such networks are determined by a pre-established regional character.

Change Over Time

During any given period of time, changes will be occurring within a region. These changes provide opportunities for the study of the nature of processes such as migration, industrialization, and diffusion. Thus, the Gulf Coast of the United States has long been a distinctive region, but its character has changed considerably as a result of the tourist, aerospace, and petrochemical industries. In the Middle East, on the other hand, regional boundaries have had to be redrawn as a result of the tapping of oil resources and the establishment of the country of Israel.

Students should be aware of change as a factor in establishing regional character and boundaries.

Scale

A regional study may be undertaken at the level of a small tourist district or at the level of world political blocs. Most units are likely to involve regions on a scale between these two extremes. Students should be conscious of the differences that scale can make: differences in degree of detail of data available and differences in the type of conclusions that may legitimately be drawn.

Identifying Regions

Many of the patterns that can be identified on the surface of the earth are the result of human activity, and it is these patterns that form the basis for identifying regions. Students should be given an opportunity to formulate their own regions, for example, to delineate the Corn Belt. Such an activity would involve a variety of skills from the formation of hypotheses, selection of criteria, and accumulation and organization of facts to the evaluation of the final conclusion.

Over time, human activity acts to reorganize the patterns of use of the earth, and regions need to be redrawn when data and criteria change. Students could be asked to redraw their own school boundary in the light of new data or criteria. The same idea could be examined by exploring the feasibility of separate states for blacks and whites in the Union of South Africa.

Organizing a Course of Study

Within the rationale and aims of this course a great variety of regional studies is possible. In the selection of units that make up a course, planners should be guided by a number of major considerations, including the interests of students and teacher, the suitability of a unit for developing one or more of the major understandings described in the section on course content, the availability of resources, and the extent to which a unit will allow students to attain the aims of the course.

If students are to grasp the concept of a region so that it becomes a useful term of reference, they must move beyond the stage of understanding what others have done, and themselves attempt the tasks that regional geographers undertake. This means that they must exercise their skill in selecting, gathering, and organizing information into meaningful forms and have the opportunity to exercise judgement in assigning relative importance to relevant information. By going through these processes themselves, they will develop the insight to perceive patterns and relationships and learn to exercise sound reasoning in reaching conclusions that are consistent with all the available information. The materials that students work with, be they printed or audio-visual materials or personal observations, should allow them to make their own interpretations, discover relationships, or draw their own conclusions. Normally, students should follow up this exploration of the meaning of the facts with a comparison of their work with the conclusions of experts. However, in a subject as dynamic as geography, there is value in recognizing tentative generalizations as useful organizers to be tested in the light of future happenings, additional knowledge, or new experience.

In the study of an individual unit, it is usually desirable to focus on the development of a limited number of the understandings listed in the section on course content. Thus, the use of a sample study in one unit would allow the idea of scale to be highlighted. In another, the use of trade statistics for different years would stress the idea of change over time.

In the choice of regions that appeal to the interests of both students and teacher, a balance must be maintained between fascination with one's home country and the lure of exotic places. Consideration must also be given to the areas studied in Grades 9 and 10 and what will be studied in Grade 13. The desirability of returning to an area recently studied in order to obtain a deeper understanding should be weighed against the attraction of exploring areas that received little attention in the Intermediate Division.

Planners should consider the advantages of selecting a focus or theme around which the individual units are arranged and which they help to illuminate. One course could be constructed around the theme of the Third World, and the individual units would be used, as the year progressed, to build up generalizations about the nature of the Third World. Such a course might have among its objectives the examination of such questions as: What are the essential differences between these regions and the so-called developed areas of the world? What do they have in common, and how significant are these similarities as compared with their differences? How are their interactions with the developed world changing, and what are the implications of these changes? Are they, as is sometimes assumed, at an early stage in a universal development model or are they likely to develop in an entirely different way from the industrialized regions of the world?

Another course might take as its theme "Regions as a Basis for Planning". Increasingly in the twentieth century the region is being used as the basic unit for implementing political and social policy. The identification of potential regions as a basis for making decisions about future growth and development can be undertaken only after considering a whole matrix of interrelated factors. Students could use their knowledge of regions to project the process of change into the future and to hypothesize about the future character of an area if a regional plan were developed. In an advanced-level course this theme could lead to the introduction of statistical methods, simulation techniques, and the development of models in the study of geography.

Whatever theme or approach to a course is chosen, the completion of a unit should result in more than increased knowledge and understanding of an individual region. It should contribute to the search for general principles and for patterns common to many regions, and should add to the understanding of the processes behind the formation of the patterns.

STUDIES FOR THE SECONDARY SCHOOL HONOUR GRADUATION DIPLOMA

In this section, outlines are provided for the development of two single-credit courses for Honour Graduation Diploma purposes. Courses developed from these outlines must reflect the scholarship and depth of treatment appropriate to this level. In some measure, students will:

- play a significant part in designing the program;
- identify topics and questions worthy of study;
- establish and test hypotheses;
- use sophisticated methods of data collection and processing;
- examine critically their conclusions and generalizations;
- undertake, in consultation with their teacher, individual investigations.

CANADA: GEOGRAPHICAL REALITIES H61-074

Canadians have developed the space of their vast country to produce a distinctive society in the northern half of North America. Canada is one of the favoured nations of the world and as such shares many characteristics common to the world's developed countries, including a high degree of industrialization and urbanization, a high per-capita demand for resources, a low growth rate in population, and a high standard of living. Accompanying these developments, however, have been problems such as a reduction in environmental quality, pockets of high unemployment, regional disparities in income, and a developing scarcity of some resources. Students should investigate the factors that have brought about these conditions and study the issues that face Canadians as a result of the geographical realities of location, physical attributes, cultural heritage, and patterns of economic development in Canada.

The Canada Studies Foundation has identified the following generalizations. These help to describe the major influences that shape Canadian society.

1. Canada is a country with a unique, northern geographic location.
2. Canada is a multi-ethnic country with two predominant linguistic groups.
3. Canada is an exposed country, open to a multitude of external cultural, economic, and political influences.
4. Canada is an urbanized country, rapidly becoming a nation of city dwellers.
5. Canada is a highly industrialized and technologically advanced country.
6. Canada is a large, regionally divided, and diverse country.

These six generalizations describe key elements that shape the character of Canadian society. Each can be studied from a geographic perspective. Students can investigate a wide range of questions, issues, and problems arising from each of these generalizations. Our heritage as Canadians is a large northern country with the accompanying challenges of a number of difficult physical environments, great distances, and a physical diversity that has established distinctive regional outlooks. Attitudes are shaped by the presence of two official languages, regional disparity, economic competition within the country, a growing concern for the rights and needs of Canada's Native peoples, and the increasingly multicultural nature of Canadian society.

Aims

As the result of taking a course developed from this outline, students should be able to:

- describe and account for the population distributions in Canada at national, regional, provincial, and local scales;
- recognize and articulate the values and attitudes that underlie decisions about the use of Canada's human and physical resources;
- demonstrate their knowledge and understanding of Canada's geographical realities as they relate to issues of national and regional significance;
- develop and use a variety of skills in gathering, organizing, and presenting geographic data about Canada and suggest reasons for the emerging patterns;
- identify the distinctive regional characteristics that combine to form the Canadian identity;
- analyse the nature and current pattern of Canada's economic development;
- evaluate the various external economic, cultural, and political influences on Canada;
- consider the opportunities and constraints that Canada's location and size provide;
- examine the issues surrounding the attempt to maintain a multicultural society with two predominant linguistic groups;
- identify and articulate their own values with respect to key issues in Canada's development.

Course Content

Northern Location

Canada's unique northern location has had profound effects on Canada's development and outlook. Our continuing Canadian concerns revolve around such things as a short growing season, cold winters, a critical need for heating fuels, problems of transportation and communications, and problems with the delicate northern ecological system. Our northern location has tended to compress our small population along an east-west axis within a few hundred miles of our southern border. Students should achieve an understanding of the effects of Canada's unique northern location on Canadian development.

The following areas can be explored:

- the northern environment – location, size, extent, physical characteristics;
- northern settlement – communications, construction, heating, and isolation;
- resource development – limitations on agriculture, the problem of building pipelines over permafrost, distances to markets (in the case of minerals and forest products);
- land ownership – Native land claims, hunting privileges, relationships with the ecosystem, role of governments;
- transportation – great distances, varied and difficult physical characteristics (permafrost, tundra, rugged terrain).

The Multicultural Heritage

Many studies can be undertaken to determine how the Native peoples and the various immigrants to Canada have responded to the challenge of the Canadian environment and how they have left their imprint on the country. An historical analysis of spatial patterns will reveal the contributions of people of varied ethnic backgrounds to the cultural mosaic. An examination of the distribution of Canada's ethnic and linguistic groups will illustrate the benefits and difficulties associated with a multicultural society.

The following areas can be explored:

- peoples of Native ancestry – the unique position of Indians and Inuit in Canadian society;
- patterns of settlement – the distribution of various ethnic and linguistic groups; the settlement patterns of various immigrant groups;
- the analysis of census data – the location and extent of various ethnic groups;
- ethnic neighbourhoods – visible signs, sequent occupance, intraurban migration;

– migrations to Canada – patterns over time, interprovincial migration.

External Influences

Immigration, trade, foreign investment, communication, and transportation are just some of the ways in which Canada is exposed to external influences. Students should investigate patterns in these factors and assess their influences on various parts of the country. To do this, students can examine the effect of the north-south physical alignments in North America and the resulting influences on Canadian regional development. Canada's small population and our desire to enjoy a high standard of living have contributed to our need to import ideas, products, and capital, thus exposing us to external influences. Students should examine how this multitude of external economic and political influences has affected our development and whether there is a need to exercise control to limit them.

The following areas can be explored:

– the external influences on Canada's economic development – foreign investment, communications;

– the basis and patterns of Canada's trade – commodities, partners, trade balances, agreements, tariffs;

– the north-south alignment in North America – regional attitudes, migration, transportation;

– Canada's coastlines – defence system, offshore fishing, and mineral exploration;

– the economic influence of the United States – industrial and resource development and ownership, trade agreements, investment;

– migration – trends and patterns;

– international involvement – foreign and technical aid, peacekeeping, NATO, the U.N.

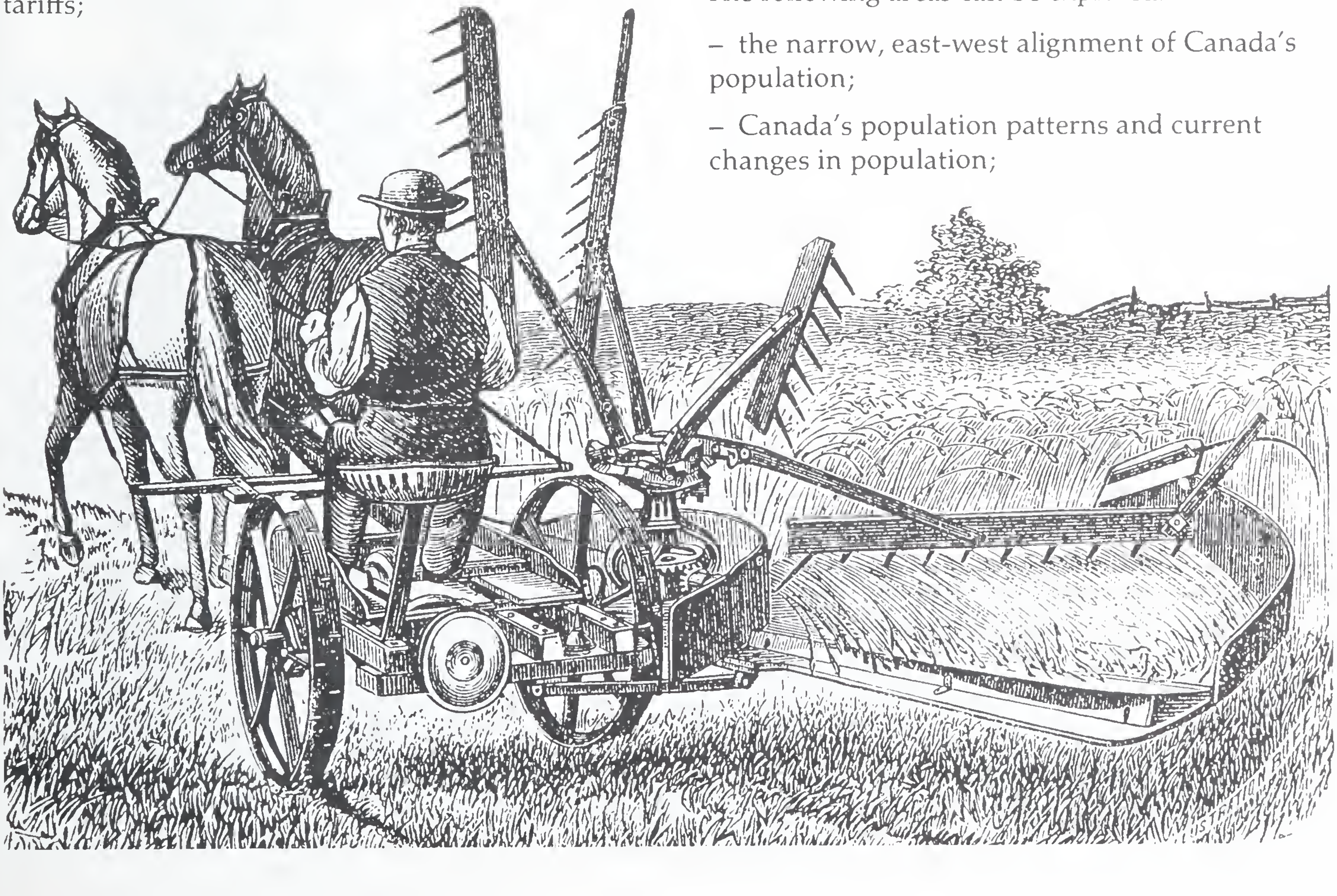
The Urbanization of Canadian Society

The major Canadian cities are the organizing centres for the nation's functional regions. What are the implications of this for Canada? Students should analyse the patterns of growth and development that have changed the rural-urban distribution of population in Canada. More important, their studies should evaluate what it means to a northern country, with a relatively small population and a very large area, to concentrate its people in a number of very large cities. Canada may be developing its own megalopolis along a corridor from Windsor to Quebec City. Students should examine the implications of Canada's becoming an urbanized country.

The following areas can be explored:

– the narrow, east-west alignment of Canada's population;

– Canada's population patterns and current changes in population;



– national and regional growth rates, urban-rural distributions, growth centres, urban-rural fringe problems;

– interregional migration;

– Canadian cities as nodes of functional regions – the Windsor-Quebec axis or corridor, Vancouver, Halifax, Edmonton, Winnipeg, Montreal, Regina, Sudbury, or other major Canadian cities chosen to illustrate how the size of a city relates to the region it serves;

– changing employment patterns in cities;

– the effect of rapid urban growth on the quality of the environment and on land use – the pressure of urban centres on recreational resources.

Canada's Economic Development

The areal distribution of economic activities in Canada provides the basis for a variety of geographic investigations. The geographic realities of a small, highly urbanized population, clustered near to its southern border and stretched across several thousand miles from east to west, make it difficult for Canada to maintain its economic viability. Students should analyse the basis of our economic growth, the locational factors that influence our economic patterns, and the factors that affect decisions on industrial location. Further, they should examine decision-making from the standpoint of regional disparities in order to judge whether all Canadians benefit from the fact that Canada is highly industrialized and technologically advanced.

The following areas can be explored:

– Canada's resource base – water, wood, energy, minerals, land, fish;

– primary industries – location and significance;

– industrial development – historical growth; location of representative economic activities; physical, political, social, and cultural factors;

– the effects of economic activities – on the environment, on population distributions, on the quality of life;

– the use of advanced technology;

– the ownership of Canadian industries;

– the regional distribution of industry – uneven growth and regional disparity;

– the problems of single-resource-centred settlements.

Regional Diversity

The sheer physical size of Canada, coupled with a tremendous physical and cultural diversity, ensures that Canadians will continue to have a strong sense of regionalism. Students will find a major opportunity to synthesize their understanding of Canadian geography by exploring the nature of Canadian regionalism and by defining a variety of Canadian regions.

In order for Canada to survive as a *nation*, Canadians must develop not only a strong sense of place, but also an appreciation of the differences from one place to another across the nation. Through their study, students should come to appreciate the geographical generalization that "Canada is a large, regionally divided, and diverse country."

The following areas can be explored:

– the types of regions in Canada – physical, functional, economic, cultural, geographic;

– regional character – contributing factors, drawing boundaries, the implications of scale in formulating regions;

– diversity and national unity – interdependence, disparity, implications of tariff and trade policies, centralizing and decentralizing tendencies;

– regional development – local, provincial, and federal planning policies, subsidies, and equalization payments.

Organizing a Course of Study

The areas of course content outlined above are expanded versions of the generalized characteristics outlined by the Canada Studies Foundation. They provide suggestions for organizing courses of study to meet the aims of an Honour-level course in Canadian geography. In addition to the broad areas of study, a number of more specific topics have been suggested. Some of the topics deal with more than one of the generalizations, while others are limited enough in scope for individual research and study. The lists of topics are not meant to be comprehensive; they are meant to suggest ideas to planners.

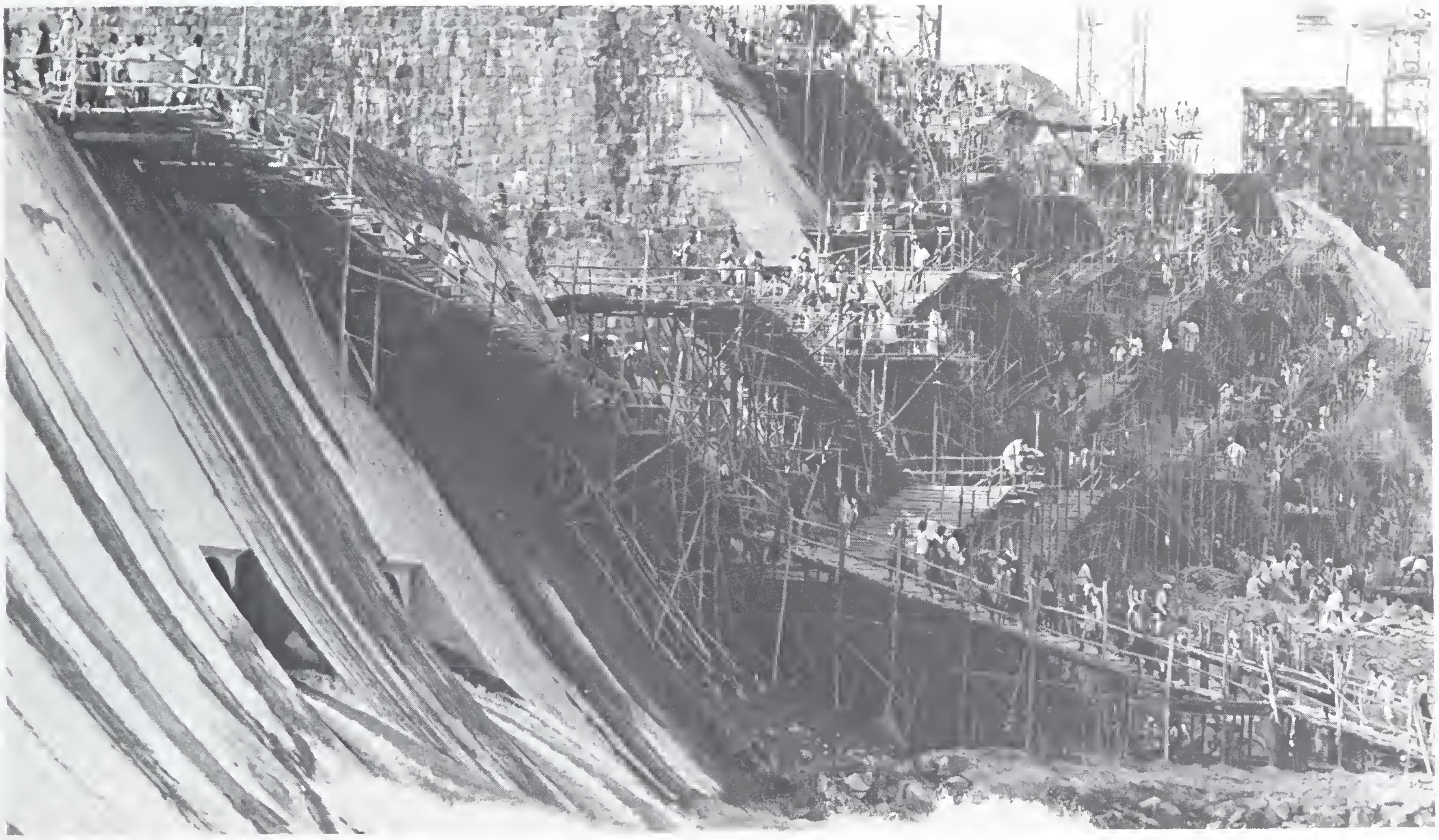
WORLD ISSUES: GEOGRAPHICAL INTERPRETATIONS H61-075

As the twentieth century unfolds, it becomes increasingly clear that all individuals are involved in a global society. Humans share common physical and psychological characteristics, common needs, and common experiences. All people rely on air, water, land, plant, animal, and energy resources. Through governments, corporations, unions, churches, investment, travel, media, markets, language, professional organizations, personal interests, and a host of other connecting links, peoples' lives are influenced by events and activities in virtually all parts of the earth. Clearly these commonalities outweigh the differences among peoples and make it in the best interests of all to co-operate to meet mutual goals. Furthermore, the emergence of a number of environmental, social, and economic issues of world-wide significance lends urgency to the need for students, in the final stage of their secondary school education, to understand the ramifications of living in a global village. The primary intent of an Honour Graduation course developed from this outline should be to provide students with a global perspective on the contemporary world.

This course outline is based on the following five concerns, which have geographic dimensions and which are global in significance:

- environmental equilibrium
- resource use
- demographic trends
- cultural, political, and economic aspirations
- technological applications

Each concern can be identified because a substantial body of information, derived from events in all parts of the earth, points to the existence of patterns of human-land interaction that have common causes and consequences. Each concern can be examined, therefore, in a number of contexts to determine the significance of the emerging patterns. Student knowledge and skills should be enhanced by a systematic examination of the issues and events that underlie the patterns and by the search for principles and concepts in the social and physical sciences that help to explain them. The search for principles and concepts is important because the future behaviour of individuals and nations should be governed by sound reasoning.



Aims

As a result of studies of "World Issues", students should be able to:

- identify and state principles of ecology that act to maintain natural environments in a state of equilibrium or modest change if left undisturbed over time;
- investigate and evaluate the effects of human activity on environments as people use resources to meet needs;
- examine issues and predict effects arising from the current distribution and projected growth of world population;
- comprehend and articulate the cultural, economic, and political aspirations of ethnic and national groups as these affect utilization of the resources of the earth;
- analyse and relate the effects of technological change on both "developing" and "developed" countries of the world;
- analyse and evaluate national and international responses to issues related to the foregoing aims;
- demonstrate a heightened awareness of the interdependence of all people through reference to a variety of connecting links among areas and peoples;
- project alternative futures based on an examination of current information and trends in the human use of the earth; and
- clarify their personal attitudes and values with respect to individual and collective responsibilities in finding solutions to issues concerning the human use of the earth.

Course Content

To assist planners in organizing courses of study, suggestions for studies have been provided in two forms. Accompanying a brief description of each concern is a list of items related to that concern. In addition to this, a second list of more comprehensive topics and themes has been provided following this section on course content. The latter list may suggest studies that will lead students to see relationships among two or more of the concerns. The lists are not intended to be comprehensive in scope; they are meant to suggest ideas that may provide direction to course planners. The two forms should make clear that studies may be organized in a variety of ways including both systematic and topical approaches.

Environmental Equilibrium

While it is characteristic of ecological systems to remain in a steady state or to change slowly over time, it has become increasingly clear that humans must not overestimate the resilience of the physical environment. Both human activities and natural events can create environmental imbalances that have long-term or irreversible effects and that, therefore, become issues or concerns. Examples may be found in events arising from prolonged period of drought, oil spills, or the encouragement of lifestyles based on an ever-increasing consumption of resources. Each event illustrates the importance of environmental issues in contemporary society.

Studies should focus on the significance of environmental equilibrium. From an examination of a number of specific examples, students should achieve an understanding of the following generalizations:

- A natural ecosystem is a complex web of relationships among animate and inanimate things.
- A variety of ecosystems are distributed over the surface of the globe.
- Individual ecosystems have different levels of tolerance to changes in their web of relationships.
- Humans exist within the context of natural ecosystems.
- Human intervention in ecosystems induces changes.

The following areas can be explored:

- natural disasters and their effects – earthquakes, tsunamis, drought, storms, floods;
- human intervention into natural ecosystems – burning, clearing, damming, irrigating, fertilizing, introducing exotic plant and animal species, disposing of wastes into the environment;
- individual and collective responsibility in environmental issues – laws, treaties, organizations, clubs, agencies, individuals;

– specialization and concentration – monoculture, hydroponics, irrigation, hybridization, fertilization, persistent substances;

– psychological and aesthetic dimensions – wilderness areas, animal habitats, open space, vanishing and threatened species;

– distinctive biomes and their characteristics – tundra, forests, savannas, deserts;

– cycles and flows in the environment – energy, chemicals, water, nutrients.

Demographic Trends

Changes in population result from many factors, including birth rates, death rates, and migration. These act in combination to produce patterns of population on the earth's surface. Population issues relate not only to absolute numbers but also to density and distribution over the earth and to the composition of populations in specific areas. One current phenomenon is the process of urbanization, which, although worldwide in scope, has significantly different effects in each society in which it is taking place.

Studies that focus on demographic trends should provide students with opportunities to gain an understanding of generalizations such as the following:

– The capability of the earth to support human populations varies from place to place.

– The optimum population for any area depends greatly on cultural as well as physical factors.

– Historically there have been a number of means of population control.

– Patterns of population distribution and density change over time.

– The total capability of the earth to support human populations depends on a host of complex and interacting variables.

The following areas can be explored:

– the factors of demographic change – birth rates, death rates, net growth, migration, disease, famine, war;

– population density in relation to the resource base – urban densities, rural densities, representative areas and numbers, overpopulation, underpopulation;

– population patterns – urbanization, agglomeration, nodes, clusters;

– population compositions and their effects – age-sex pyramids, affluence, public health, labour force, demand for services.

Resources

The capacity of the earth to sustain human population at acceptable levels depends greatly on the ability of people to identify and use resources. Resources, therefore, can be defined only in a cultural context. Without knowledge, technology, capital, and suitable political organization, natural resources may lie unused or may be used wastefully.

Studies that focus on the significance of resources should provide opportunities to develop an understanding of generalizations such as the following:

– Resources are culturally defined.

– The demand for resources is a function of social and economic systems.

– Resources are often classified as renewable and non-renewable.

– Available resources include materials often classified as wastes.

– Resources may not run out, but instead may become too expensive to use.

– Energy in some form is often a key to converting materials into resources.

– All natural resources must come from the environment.

The following areas can be explored:

– the demand for key commodities – foods, fuels, wood, metal, fibres;

– energy alternatives – biomass, the sun, wind, tides, fossil fuels;

– resource ownership – personal, public, corporate, international, foreign;

– multiple-use resource management – forests, seas, rivers;

– the changing resource base – depletion, substitutes, synthetics, marginal resources, agricultural productivity, exploration.

Cultural, Economic, and Political Aspirations

In the three decades following World War II, the political maps of Eastern Europe, Asia, and Africa have had to be redrawn to keep pace with the disappearance of some political units, the emergence of others, and the relocation of national boundaries. Emerging and developing nations have established policies and programs to meet their own national goals. While the driving forces have often been cultural – language, religion, political ideology – economic issues of disparity among nations and between the rich and poor within nations have been recurrent themes in the unfolding world scene. In most cases, the changes have been accompanied by strife within a nation's borders or by friction with immediate neighbours.

During the same period of time, economic specialization, vastly improved means of communication, and co-operative agreements among governments have drawn nations closer together to meet mutual goals. Commercial, scientific, educational, and cultural organizations have formed alliances to share resources for mutual benefit. Since the ultimate goal of all progress is human development, it is important that students recognize both the broad patterns of contemporary cultural, economic, and political development and the way in which these are manifest in specific areas and situations.

Studies should focus on these human dimensions of the contemporary world. Through studies of issues and events that reveal cultural, economic, and political aspirations, students should develop an understanding of generalizations such as the following:

- Cultural, economic, and political aspirations result from the human desire to maintain and improve individual and collective well-being.
- The aspirations of individuals and groups are influenced by culture and environment.
- Both the perception and the utilization of the earth's space and resources are affected by cultural, economic, and political factors.
- Knowledge and ideas are spread throughout the world by a variety of effective processes.
- The aspirations of individuals and groups for the use of space and resources may lead to co-operation or to conflict.

The following areas can be explored:

- legacies of the past – wealth, poverty, health care, disease, development, exploitation, independence, colonialism, aid, imperialism;
- forms of interdependence – trade, foreign aid, loans, technical assistance, international agencies, military alliances;
- forms of commercial organization – multinational corporations, organizations of commodity producers, cartels, trade blocs;
- emerging nations – Israel, Communist China, Indonesia, Tanzania;
- prospects of multicultural societies – Brazil, India, Indonesia, South Africa, Rhodesia;
- minority groups in societies – North America, Eastern Europe, the U.S.S.R.

The Application of Technology

Technological development is causing rapid changes in both the "developing" and "developed" nations of the world. Paradoxically, technological developments can solve old problems while creating new ones. Examples of these paradoxes can be found in the development of nuclear energy, the increasing dependence on chemical fertilizers to sustain food production, and the use of aerosol sprays for convenience.

Further, all technology operates within a social context. Technological applications can result in conformity, dependence, standardization, and control, conditions that can be viewed as threats to human liberty. It is important, therefore, in studying issues that involve the application of technology, to ensure that students are aware of the implications for human lives.

Studies should focus on the effects of technological applications on the contemporary world. Through the study of topics and themes, students should gain an understanding of generalizations such as the following:

- Technology involves the application of scientific principles to accomplish tasks with increasing effectiveness or productivity.
- The application of technology has been characteristic of human groups throughout history.
- The application of technology has led to the shrinking of the world towards a global village.

- Technology, like science, is neutral, but its application takes place in a social context.
- Different societies operate at different levels of technological development.
- Substantial disruption can occur when societies receive (employ) technologies that are not consistent with their level of development.
- Social attitudes and economic pressures often influence the application of technology.
- The effects of technological applications are not always predictable.
- Modern technology permits the application of scientific principles on a world scale.

The following areas can be explored:

- technology in resource conversion – agriculture, mining, forestry, fishing;
- technology in data gathering and processing – sensing, instrumentation, data processing, computing, analysis, networks, systems;
- direct and indirect costs of technological application – capital, energy, pollution, health hazards, lifestyles, division of labour;
- the role of technology in modifying and managing environments – insecticides, herbicides, fertilizers, biological controls, disease control;
- technology and transportation – air, sea, land, space;
- the role of technology in the provision of basic needs – food, water, shelter.

Integrative Topics

The following list may suggest starting points for studies that investigate the relationships among a number of related concerns. A unit on the Law of the Sea conference, for example, would address the need for international agreements regarding the future of two-thirds of the earth's surface. A review of the generalizations related to ecosystems, population patterns, resource development, economic aspirations, and technological competence is needed if students are to comprehend the task that participating nations are undertaking. An advantage of this integrated approach is the opportunity it presents for evaluating the relative importance that should be assigned to each concern in making decisions about the future.

For another unit, the five concerns that have been identified as the basis for this course may be useful subheadings for the study of the integrated topic. One of these concerns can also help to identify narrower topics for study by individual students or groups.

Some of the suggestions presented below are current, while others have been relevant for centuries. Course planners should add to or delete from the list as circumstances make it advisable.

- Global patterns of trade
- Third World development
- Lifestyles and economic development
- The shrinking world
- The energy "crisis"
- The United Nations Conference on Law of the Sea
- General Agreements on Tariffs and Trade (GATT) objectives
- Zero population growth
- World commodity needs
- Self-sufficiency as an objective for nations
- Measures of economic disparity
- Endangered and threatened species
- Population projections
- Human habitats

Organizing a Course of Study

While topics chosen for study may change from year to year as issues emerge or assume increased importance, all units in a course should relate to one or a combination of the five concerns. The concerns have been identified in these categories for convenience, but it will be recognized that each impinges on all the others and that any unit will likely incorporate information and principles relating to the others. For example, the use of insecticides is a technological application, but its effect is to introduce a new agent into an ecosystem; increasing urban populations often put pressure on agricultural land, a non-renewable resource; the supply and price of oil may depend heavily on the political alignment of a few producing nations.

The global focus has implications for course organization. Wherever possible, topics or themes should be chosen so that an issue is examined as it affects people or environments in a number of locations on the globe. An essential understanding is that the total significance of an issue may be much larger than the sum of its parts. It should be clear, as well, that issues are perceived quite differently by persons in different locations or with different cultural outlooks. Students should be encouraged to recognize their own cultural biases and to view issues from as objective a viewpoint as possible.

Courses developed to study the world-wide implications of the five identified concerns have the potential to be wide-ranging in both content and teaching strategies. To maintain the geographic perspective, teachers may find it helpful to review periodically the section entitled "Developing a Senior Geography Program", which describes the expectations for Senior-level courses. The opportunities for skill development and concept formation in Honour Graduation courses should be particularly rich.

DEVELOPING A SENIOR GEOGRAPHY PROGRAM

The dilemma and the task of geography is to divide the real world in an artificial but useful way so that students can see the order among the different components and so that the multitude of relationships among physical and human phenomena may be identified and explained. Geography is a matter of perspective more than of content. The study of geography should provide Senior students with a perspective for examining what exists on the earth and where it is located. The lack of a unique body of content creates a problem in that an almost overwhelming amount of factual information must be dealt with. It thus becomes essential that studies in geography be organized around a well-planned conceptual framework. The conceptual framework then guides the selection of information and helps in the choice of methods for processing it. The three steps – selection of information, processing of information, and the formation of concepts – should underlie all studies in the Senior Division and should be the foundation on which all units and courses are built.

CONCEPTUAL UNDERSTANDING

In simple but useful terms, concepts are abstractions around which facts may be organized and about which generalizations may be made. All kinds of factual data can be amassed around the concept of the *migration* of people – their routes, their eventual destination, their mode of transport, their reasons for moving, and the like. The analysis of the information leads to the formulation of generalized statements, such as "Interprovincial migration in Canada increases primarily in response to increases in unemployment levels." The simplest concepts are those used to describe things or objects – hills, farm, volcano, factory. The things to which these concepts refer can be seen or observed. Other things, by virtue of their area or time scale or simply because they are too all-embracing, cannot be observed in their entirety. *Continental glaciation*, for example, presents problems of scale because of both the massive extent of the process and its duration. Other concepts are so complex that it is difficult to comprehend all the facilities and operations involved. An example might be the concept of a *distribution network* as it pertains to a worldwide petroleum company. In addition, there are concepts that do not refer to objects or events but to ideas developed by people. These can never be observed directly. They include, for example, all concepts that express a relationship like *population density* or *relative humidity*. Finally, mention must be made of the major organizing concepts of geography which form the conceptual framework of the subject. They include terms like "spatial interaction", "support of life", "areal differentiation", "resources", "regionalism", "people as choosers", "constant change", and "a global viewpoint". Each, in itself, is a complex of interrelated concepts which, taken collectively, establish the perspective of geography.

These illustrations may show that concepts serve to convey abstract ideas which may be relatively simple or extremely complex. For students, the process of concept formation serves to build vocabulary, to expand the capacity to reason in abstract terms, to relate information from one domain of knowledge to other domains, and to improve the clarity and precision of communication with others. Because studies in geography should be contemporary and holistic, concept formation is not likely to take place in an orderly or neatly cumulative way; however, many concepts recur from study to study and become increasingly powerful as supporting detail and related concepts are woven in. Conceptual understanding should be a primary aim of the geography program. The development of a conceptual framework, therefore, is critical to the organization of effective geography courses.

In this guideline, the content of courses is, for the most part, described in terms of conceptual understanding rather than in terms of specific content examples. This allows for considerable flexibility in the organization of course material. At the same time, it requires that courses of study indicate what supporting concepts are to be used in the course and the way in which specific topics will be used to develop these conceptual understandings. Course planners should provide opportunities for concept formation by students, including those concepts that relate to human decisions such as perception, culture, values, and long-range human goals in terms of occupying the earth.

SELECTION OF CONTENT

As a discipline, geography is constantly undergoing change. While this adds to the difficulties of providing a definition that will be satisfactory to everyone, it is possible to summarize the basic characteristics of all studies in geography. The following three propositions provide the criteria by which a topic or unit of study may be assessed for its geographic content:

1. All studies, in some measure, involve investigations of *area, pattern*, and *interrelationship*.
2. All studies, in some degree, emphasize the physical and human organization of space that give *character to the world's places*.
3. All studies, in some way, have to deal with the question: *"Why are things located where they are on the earth's surface?"*

Areas are studied because, just as all events, issues, or situations exist in time, they also exist in space. Since it is not practical always to study the whole globe, it is by the study of specific areas that an understanding of many geographic concepts can be developed. These include concepts such as regionalism, areal differentiation, place, homogeneity, areal association, hinterland, occupance, succession, adaptation, modification, environment, and a host of others. A second major objective of studies of areas is to develop skills of synthesis, that is, to find unifying characteristics within a defined area so that a holistic understanding of the area is achieved.

Patterns also exist in space. The patterns that are of particular interest to geographers relate to the distribution and associations of phenomena in space. Concepts arising from studies of patterns include centrality, marginality, accessibility, density, texture, complementarity, and hierarchies. In examining patterns, the student should look at both distribution and intensity of occurrence. Patterns are seldom stable and may be in a state of flux while a process such as industrialization is taking place.

Interrelationships among phenomena on the earth's surface must be a central concern of geographic studies. Students should already be aware of many relationships such as those between climate and vegetation or between per-capita income and consumption of goods. The search for interrelationships should lead students to an examination of concepts such as systems, interaction, correlation, circulation, networks, and functions.

THE SOURCES OF GEOGRAPHIC INFORMATION

Geography students should be obtaining their data about the contemporary world from a wide variety of sources. The use of primary or relatively unprocessed data provides students with the maximum opportunities to be engaged in the processes of discovery.

In the strictest sense, primary data should be gathered at first hand by a variety of field techniques including sketching, photographing, interviewing, and counting. Students in the Senior Division should be provided with some opportunities for direct observation and measurement. However, it is impractical and too restrictive to have them do more than a modest amount of primary data collection. Many excellent methods have been devised to bring the world to the classroom. In many cases these materials are only a short step away from being primary data. Such things as topographic maps, air photographs, or tables of statistics provide relatively unprocessed information to which students can apply their skills in processing information. Tertiary sources usually represent the author's perception, interpretation, or subjective opinion of the topic under discussion; the authors of such material seldom identify their sources. In using these, students should become increasingly sensitive to the difference between fact and opinion. It should be noted that tertiary sources frequently provide a variety of insights into the attitudes, feelings, and values inherent in current issues and thus contribute to the students' understanding. A selection of such learning materials can be used as the base of information for a unit of study or as supplements to textbooks.

PROCESSING GEOGRAPHIC INFORMATION

Senior students should be refining skills they already have and developing, testing, and evaluating new skills for processing information. Some skills will be learned primarily in other subjects and be reinforced in the geography classroom. Others, especially that collection of skills subsumed by the term "graphicacy" have their major development in geography.

Students should process data and learn to simplify them in useful ways. They should be involved in reading topographic maps; interpreting aerial photographs; charting, graphing, and analysing statistics; transforming data to visual forms, especially in the form of maps; and correlating information from various media. These are the ways by which data can be synthesized to formulate conclusions. The processing of information will provide opportunities for students to develop complex intellectual skills in a geographic context. Students will examine or develop theories, models, and regions – the generalizations of geography. The following paragraphs expand on the variety of skills required for processing information.

Description and explanation. In its simplest terms, the process of geographic investigation and study occurs along a continuum from *description* to *explanation*. (In recent years there has been considerable expansion of the continuum in the direction of *projection* or *prediction*.) Description involves the development of specific vocabulary; the observation and recording of data; the use of visual materials such as maps, graphs, and photographs, and the ability to interpret material accurately.

Description will require the Senior student to develop intellectual skills such as the following:

- the ability to gather information through such means as recall, observation, recording, and interpreting written, graphic, and mapped data;
- the ability to organize information by such means as classifying, plotting, identifying component parts, and analysing to find logical groupings or associations;
- the ability to rearrange information by such means as grouping, correlating, and reorganizing patterns.

In the Intermediate years students will have acquired a basic geographic vocabulary and some capability for describing phenomena that occur on the surface of the earth. In the Senior Division, with a capability to consider more information, students should be able to describe what exists with added precision. Their descriptions should include some combination of a larger number of variables, more reliance on quantitative material, better methods of recording descriptive data, and greater emphasis on interpretation from a variety of sources than were involved in descriptions at the Intermediate level.

As an example, many Intermediate students will have acquired a checklist of items to be considered in describing an industrial area – raw materials, power, transportation facilities, labour force, and market. Senior students should be able to examine each factor in greater depth. Energy resources may be examined in terms of comparative costs at different locations or the costs of alternative sources. Additional energy requirements may be met only by some compromise with environmental quality, for example, additional air pollution from coal-fired generating stations or thermal pollution at nuclear-powered stations. Senior students may also consider additional factors in industrial location such as industrial inertia or the availability of capital.

More sophisticated description inevitably represents a shift along the continuum in the direction of explanation. The tasks of explanation involve the consideration of particular cases, the assessing of evidence, and the drawing of conclusions. Generalizations can be made at a number of levels. Advanced Senior students will be examining highly generalized models and theories and may attempt their own models based on their research. In all cases, Senior students are increasingly involved in the tasks of explanation and the development of intellectual skills such as the following:

- the ability to recognize cause-effect conditions;
- the ability to apply principles and concepts from the physical and social sciences;
- the ability to perceive relationships and interrelationships among two or more variables;
- the judgement to assign relative value to two or more variables;
- the ability to synthesize a number of variables into a coherent whole;
- the ability to reach generalizations that accurately describe existing conditions and relationships;
- the ability to evaluate the validity of generalizations by applying relevant criteria.

Both description and explanation require the skills to present information clearly in written and graphic forms such as prose, charts, graphs, tables, maps, diagrams, and models. In recent years, there has been an increasing emphasis on precision in description and measurement.

Reasoning processes. The tasks of explanation involve complex intellectual skills and problem-solving processes. The straightforward route from description to explanation is an *inductive process.* The student makes a series of observations which become the substantial body of evidence on which subsequent generalizations may be formulated.

Deductive methods start with possible explanations of how particular features came to have distinctive locational characteristics. This problem-solving model begins with a hypothesis. Relevant information can then be gathered to test the hypothesis. In fact, the use of the deductive method may sharpen data collection and improve or facilitate the explanatory process. Concentration on a possible explanation may help to screen out the distracting variables which, while part of reality, obscure the recognition of basic and useful patterns.

The study of a region, for example, might proceed in largely inductive ways. Students would gather information about the area, organize the information, reach generalizations about the essential character of the area, and attempt by reference to the physical and human forces to explain the current pattern of human occupance and resource use. In many cases the inductive method is the simplest and quickest to use. This is especially the case where the question under investigation is straightforward and the answers are likely to be specific to one example rather than general to a number of cases. For example, students may be asked to describe and account for the distribution of the Francophone population in Ontario. The answer will be case-specific and is unlikely to yield any generalization applicable to other Francophone minority populations. In such a case, it is most expedient to decide on how the data can be obtained, transfer them to a map, describe the distribution, and then proceed to explanation.

Conversely, the pattern of distribution of residential, trade and industrial areas in urban concentrations may be obscured by particular cases. It may be more profitable to proceed deductively by considering how towns get started and then develop a hypothesis about what pattern of distribution this would tend to produce. The subsequent collection of relevant information could confirm or deny the hypothesis with less obstruction from interesting but case-specific factors such as topographical site or meteorological conditions. When a reasonable generalization or model has been confirmed, such specific factors can then be seen in perspective with respect to particular cases.

A somewhat different case in which the deductive process could be useful is a study of Canadian resources. Students might begin with the hypothesis that Canadian resources should be used exclusively as the basis for the development of a domestic manufacturing industry. This theory could be tested by an examination of the nature of Canadian resources, domestic and foreign markets, ownership, capital investment, environmental effects, needs for imports, the advantages of specialization, and other related factors. Following this gathering and weighing of information, it is likely that the original hypothesis will be modified significantly or replaced by a more comprehensive and informed explanation of existing resource policies. Based on their increased understanding, students could proceed to propose policies intended to achieve the best use of Canadian resources in the future.

It is important that students at the Senior level have experience with the whole range of processes associated with description and explanation and with both modes of reasoning. All of these processes will be assisted by the development of operational, graphic, and group skills as outlined in the following sections.

Operational skills. There are many skills that form an integral part of the geography program. They are given a variety of names but are here grouped as the operational skills necessary to obtain and process information in geographic studies. Naturally, reading ranks high among these basic operational skills. Most of the facts and data used at the Senior level cannot be gathered first hand. The students must acquire their information from library sources. In organizing a course of study it is important to consider the reading abilities of students and their skills in extracting and abstracting information from printed material.

It will also be necessary for students to keep orderly records of information. They must develop the kinds of operational habits that are important to the use of information at a later date. Sources of data must be identified; maps and graphs must be carefully titled and labelled; graphs should have significant numbers recorded on them or on closely attached supporting tables.

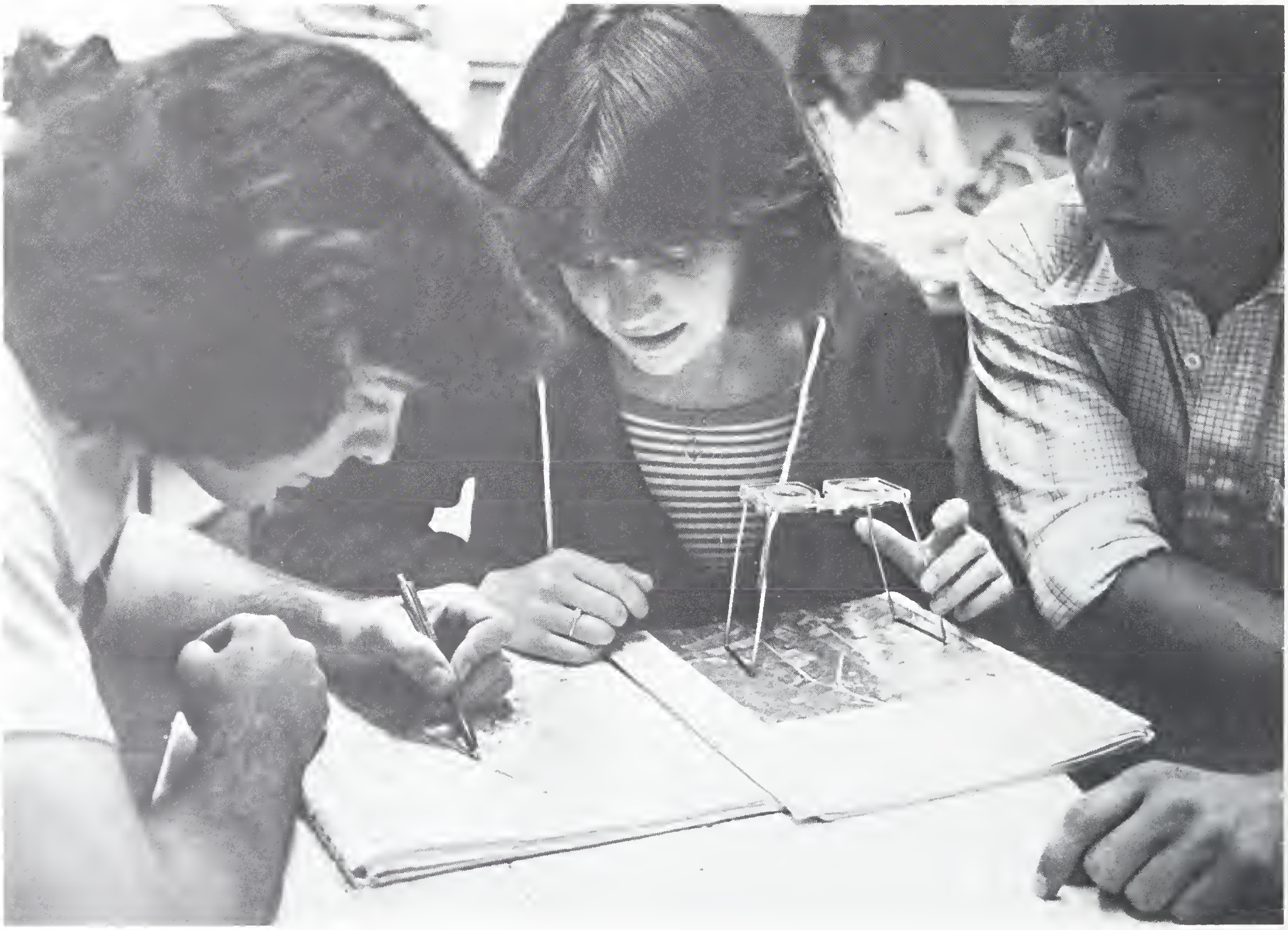
Statistics are an important aspect of geographic studies. The term is used in two ways – as a synonym for numerical data and in a wider sense subsuming both the data and the methods for analysing the numbers. Students should have opportunities to use statistics in both meanings of the word. At the very least, geography students should have a good grasp of terms such as "mean", "median", "correlation", "density", "percentage", and "per capita". This requires the capability to do simple arithmetical calculations. In addition, they should be able to determine the nature and meaning of the information contained in a table of numbers. Some students may also be able to apply or develop formulas that demonstrate relationships more precisely.

The complexity of the statistical methods used will vary considerably from class to class. A number of statistical methods are useful for summarizing information, measuring geographic distributions, estimating, and identifying spatial patterns and relationships. The use and application of these methods will depend to a large extent on the nature of the course content and the interests and abilities of the students.

Graphicacy. The content of geography – data about area, pattern, and interrelationship on the earth's surface – requires the use of visual methods as a significant part of the discovery processes. Thus, the most distinctive contribution that geography makes to the general education of students in secondary school is in the area of graphicacy. This term subsumes all the ways by which data can be obtained, recorded, analysed, and generalized in an essentially visual as opposed to verbal or numerical way. The photograph condenses a thousand words; the graph makes numerical information more easily understood; and the map in all its many uses is the most important tool of a geography student.

The skills of graphicacy are closely linked to the intellectual skills. They have a part to play at every level from knowledge acquisition to analysis, synthesis, and generalization. A distribution plotted on a map is a mere areal description. However, the recognition of the kind of pattern in the distribution immediately involves an analytical process. If the pattern subsequently raises questions about the relationship of the distribution with some other variable, the student is on the road to a conclusion and a subsequent generalization.

Graphic methods are an indispensable part of the geographic process. Students should have many opportunities to use the map, graph, and photograph to acquire information. To do this they will need a variety of "reading" and "interpretive" skills. Most important, they must be encouraged to use the graph and the map to portray information. For this they will need to develop both the simple skills of cartography – legibility, clarity, and precision – and a number of more sophisticated skills.



A well-designed exercise in graphicacy should involve students in decisions as to what information the illustration should provide, a comparison of various methods of depicting information so that both accuracy and clarity are obtained, and an evaluation of the usefulness of the illustration for synthesizing information and for showing correlations among variables.

Group skills. Geography students should be taught, and should practise, the skills of group work. Students will employ a variety of methods of data collection and of presenting their findings. These processes lend themselves to the sharing of the workload and the consequent use of shared decision-making techniques. If groups are formed to provide a team with varied strengths, each member has an opportunity to learn from the others.

Perhaps most important, as students become more skilled in co-operative problem-solving, they learn how to reach better conclusions than they could as individuals.

Group-work skills should be an integral part of a course. Laboratory exercises and research topics can be designed to enable students to work in groups and at the same time to develop some judgement about which tasks are best done co-operatively and which individually.

Students at the Senior level should be refining their skills of presenting and receiving information, clarifying problems, setting goals, and focusing on the task. Group work is the method by which students can practise these skills while achieving the other goals of a geography program.

ATTITUDES AND VALUES

Values education should be an important dimension of every course developed from this guideline. Frequently, the students themselves will identify values issues for analysis and discussion. On other occasions, it will be the teacher's task to point out that a situation cannot be understood simply in terms of its physical or economic components.

In this connection there is considerable uneasiness amongst educators and parents as to the legitimate place of values education in the school program. Some believe that the school ought to inculcate the generally accepted values of our society. This presupposes an ability to identify "generally accepted values". Others claim that values are intensely personal, and thus any attempt at examination or evaluation is a form of indoctrination. From this point of view, the teacher ought to accept any value or attitude postulated by any student. A third group of people contends that values issues are not a legitimate concern of the school; the school ought to confine itself to matters that lie in the cognitive domain. This latter group assumes that it is possible, for instance, to acquire an understanding of the facts and theories of migration without reference to the beliefs and values of the migrating peoples.

The policy of the Ministry of Education, as stated in *The Formative Years*, is that students be given the opportunity to develop a personal value system within a context that reflects the priorities of a concerned society and at the same time recognizes the integrity of the individual. The following ideas are offered as an aid in implementing this policy in Senior geography courses.

It is generally accepted that teachers should affirm the values underlying the rules about how a class conducts itself – namely, respect for the individual, concern for others, and social responsibility.

It is also assumed that teachers will inculcate the values associated with the study of their discipline, for example, respect for rational argument and the rules of evidence. In the geography classroom critical thinking is to be preferred to blind memorization. Gathering of evidence to support an idea is preferable to reliance on prejudice or someone else's opinion.

However, in the area of values, which imply belief in a particular way of life, religion, political system, and so on, the teacher's task is not to inculcate a particular value, but rather to help students make their own choices. It is suggested that teachers take a three-pronged approach in this area.

Members of the class, and here the teacher is considered to be a member, should aim to:

- become more aware of their own and others' values;

- develop their own value system;
- become increasingly able to identify and analyse the underlying value positions that are implicit in public issues.

Students should become more aware of their own values and those of others. These could be illustrated at a simple level by inviting them to suggest ideas for the reorganization of their own school campus. The fact that the suggestions will differ from one another will be partially explained by the fact that the students hold a variety of values. They could then be asked to articulate the values that lead one to suggest a sports complex, another a garden area, and a third a shopping plaza with a pinball arcade.

In their studies of the world, students in Senior geography courses will be coming into contact with value systems very different from their own. Some human-land interrelationships such as those found among the Masai of East Africa make little sense if judged according to the value system of an average teenager raised in Ontario. If students are to develop a knowledge and understanding of people and places, and of the relationships between the two, they must be able to recognize and understand the values of particular cultures, and to accept the fact that people from different cultural backgrounds and environments will have a different set of "shoulds" and "oughts" from their own.

Each student comes to the class with a unique, complex value system, which he or she has been developing since very early childhood. The student should have the opportunity to continue this development. In an open and supportive classroom environment, students will feel free to examine their own values and, if necessary, to revise them so that they form part of a coherent system that adequately reflects their present maturity and experience.

If one were to ask a twelve-year-old why it is wrong to go into someone else's house and take that person's food, he or she could probably explain that we hold values such as respect for the rights of others. Faced with the problem of trying to understand the Arab-Israeli conflict in the Middle East, the Senior Division geography student will have to test this value in a much more complex situation in order to see what other values are involved, such as a people's right to exist as a nation and a people's right to defend their homeland.

Students should be increasingly able to identify and analyse public values issues. If, for example, a corporation plans to close down one of its large plants, what ought to be done about the unemployment crisis that will result? Here the students are likely to find conflicts, not only between the values of one group of people and those of another, but also between two or more of their own deeply held values. Senior students are mature enough to realize that the valuing process involves more than simply picking the more appealing of two possible values, and the teacher needs to have a model of the process so that he or she can guide them.

The following is *one* such model that may be adapted to suit the students and the particular situation. It is not suggested that the class go through such a process every time a value issue arises. Frequently, it will be desirable to highlight only one or two of the steps.

Steps in the Valuing Process

1. Identifying, clarifying, and defining a value
2. Recognizing the possibility of change
3. Identifying alternative values and their sources
4. Gathering and evaluating data
5. Analysing alternatives in light of likely *consequences*
6. Choosing *freely* among ordered alternatives (decision-making in which the original value is reinforced, modified, or discarded)
7. Internalizing the value into behaviour (The chosen value is seen as clear, consistent, and defensible, and is used as a factor in future decision-making.)
8. Re-evaluating the choice, as necessary, in the light of new experiences

As they become more sensitive to their own attitudes and values and those of Canadian society, the students will gain a deeper appreciation of the ways in which other societies have developed their area of the planet. They will also be in a position to make better decisions about their own use of the environment and about what ought to be Canada's attitude to world issues.

The evaluation of student progress in the three areas outlined here is not easy and should be approached with caution.

In the case of values that relate to the way a class conducts itself, teachers do not hesitate to make judgements. However, the judgements and the approval or disapproval expressed by the teacher must apply to student *actions* in the classroom or school. Whether the students have internalized the underlying values probably cannot be known until they have left school and are free to make their own decisions about how to behave.

The same applies to the values associated with the learning of geography. Teachers will stress the need for good study habits and will evaluate the extent to which each student's work exhibits the characteristics of sound geographical procedures. The hope is that the students will internalize the underlying values and use them as guides in dealing with similar situations in school or out. The geography teacher will not often have the opportunity to assess whether this happens.

Thus, in both cases, it is the students' overt behaviour in the present that is being evaluated, not their underlying beliefs, attitudes, and values.

In the area of values that imply belief in a particular way of life, religion, political system, and so on, a judgemental attitude would hinder the achievement of the stated aims. If students and teacher are to understand their own and others' values, an accepting and non-judgemental attitude towards one another's values is essential. The teenagers and young adults in Senior Division classes will revise and reorganize their value systems in response to their wider knowledge and experience rather than as a result of pressure from a teacher or other adult. The teacher, then, must respect the right of the individual to select his or her own values, while at the same time assessing progress in such areas as the ability to state a value and to give the reasons behind it.

Thus, the aim of evaluation in this area is not to produce a mark or grade which would tell students where they stand in relation to the rest of the class or in relation to some objective standard. It is to provide feedback that will enable them to make their own judgements about what values they wish to hold as responsible members of society.

DEVELOPING A COURSE OF STUDY

The process of planning a course of study begins with an examination of the nature of the students for whom the course will be designed, their concerns, needs, and interests. The average Senior Division student is different from the adolescent of the Intermediate Division, and the Grade 13 student is different again. Although by no means mature adults, many Senior Division students have passed through the period of physical and psychological change that accompanies adolescence and now see themselves, most of the time, as young men and women. One consequence of this is that their own goals and interests are likely to be more powerful motivators than their desire to please adults. Frequently, they will take more responsibility for their own work. Many of them are more able to work independently or as members of a small group than they were a few years earlier. Their interests tend to be more stable than those of the younger adolescent, and many will have oriented their school programs to employment or to post-secondary education. All of these attributes of increasing maturity, as well as differences in intellectual ability and, possibly, differences in experience in the discipline of geography, need to be taken into account in the organization of courses of study.

The next step is to select topics or themes for individual units and to weave them into a coherent whole so that the aims and major understandings of the course can be achieved.

PLANNING A UNIT

The Intermediate Division geography guideline devotes considerable attention to this topic, and many of the suggestions made there are applicable to Senior Division courses. A unit of study is considered as the basic building block of a course of study and should contain the following essential features:

- a statement of specific objectives;
- the selection and organization of content;
- suggested teaching strategies and learning experiences;
- a description of available teaching and learning resources;
- an indication of evaluation techniques.

The objectives laid out for individual units should be specific enough to provide focus and direction, but flexible enough to allow additions and modifications by the students. As young adults, these students should be getting practice in planning their own work, and though course objectives may be beyond their scope, they might well help to set the objectives for a four- or five-week unit.

The selection of content in terms of the knowledge and skills to be acquired should also allow for student input. The courses in this guideline frequently state the course content in terms of concepts to be taught. However, the actual topics or areas of the world that will be the vehicles used to teach these concepts will be chosen by local planners.

A course outline should also contain suggestions for teaching strategies and learning experiences. Although these older students are more able to sit and listen than are younger students, this does not necessarily mean that they learn better by listening. To determine whether a course outline will encourage student involvement, it is a good idea to restate teaching strategies in terms of what the students will be doing. Learning experiences should include individual and small-group work as well as class work. They should also include instruction and practice in organizing such things as a research project or an oral presentation.

A description of available teaching and learning resources should be an important component of all courses developed from this guideline. Such a description, which will be used by both students and teachers, should contain a variety of resources as outlined in "Sources of Geographic Information". Skills in the use of a variety of resources are transferable to other subjects and other situations and should be developed in every geography course at the Senior level.

Finally, the course outline will contain, for each unit, suggestions for evaluation techniques that are clearly related to both objectives and learning experiences.

The planning process should be a co-operative effort among teachers in a geography department and, where possible, among teachers from several schools. Co-operation among teachers in the same school will allow for the development of a coherent program across four or five years. Growth in skills and conceptual understanding can be planned so that undue repetition is avoided. Co-operation among teachers from several schools need not have as its aim a common course of study. Its greatest value lies in the variety of teaching strategies, learning experiences, and evaluation techniques that can be assembled. Ideas and sources for resource material can be shared so that the individual teacher will be in a better position to plan for his or her own classes.

LEVELS OF DIFFICULTY

An important consideration in planning a course of study is the level of difficulty at which the students can work: students should experience a feeling of challenge when they are engaged in a task and a sense of satisfaction when they have completed it. A course designed for students working at the advanced or enriched level will be different from one designed for students working at the general or basic level even if the two courses are based on the same guideline. The following general statements are offered as aids in planning.

Units of study will be organized around the development of major concepts. However, the concepts will reflect the experience of the students and the level of abstraction at which they are able to work. One course could use the concept of energy to organize some practical information about coal, oil, and water-power resources. Another could deal with the concept of energy in forms such as chemical, mechanical, radiant, electrical, nuclear, and thermal energy.

Areas or topics chosen for study will also capitalize on the stated or inferred interests of the group of students involved. Thus, a group whose program includes technical subjects is likely to be interested in a study of diffusion as it applies to technology, whereas a group whose program centres on languages might wish to trace the geographic spread of languages.

Considerable attention should be devoted to attitudes and values. Here the difference will appear not in the valuing process itself, but in the intellectual skills and knowledge required to examine a given issue. An examination of the effect of a Communist system of government on the economic development of China presupposes a knowledge of political as well as of economic systems, for example. On the other hand, an examination of the standard of living could be based entirely on the students' own ideas about what constitutes a high standard of living. Ensuing study would then demonstrate that people in other lands and other cultures use different yardsticks to measure standards of living.

All levels of thinking skills – the acquisition of knowledge, comprehension, application, analysis, synthesis, and evaluation – will be practised by all students. The differences will appear in the degree of complexity and the level of abstraction, or in the amount of guidance given by the teacher. For example, at the conclusion of a unit on an area of the Third World, the teacher might ask "How useful is the aid given by Canada?" The students could then be left alone to struggle with the data and to arrive at a conclusion; or they could be guided through the steps of understanding and analysing the information, developing the overall picture, and making an evaluation. An evaluation question at the Senior level can be as simple as "Which of these four methods of mapping population density would be most effective?", or as complex as "To what extent does the pattern of agriculture around this city conform to Von Thunen's model?"

The same point applies to teacher intervention: the questions posed by a teacher will differ in the number of thought processes they demand. When faced with a topographic map showing long-lot settlement in Quebec, the instruction might be, "Account for the settlement pattern of this area." On the other hand, the idea could be developed by a series of questions such as: "Where are the houses located? Are they suburban houses or farms? What shape are the farms? How does this compare with farms in our area? What could account for the difference?"

In a similar vein, if a unit included a research study project,* the teacher might wish to check with the students at the completion of each step. In an advanced-level course, assignments would consist of larger blocks of work with teacher intervention only at critical points.

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*See "Research Study Skills", a support document for the geography guideline for the Intermediate Division.

The speed at which work is accomplished varies from one group of students to another, but this variation does not necessarily mean that an advanced-level course will contain more units or cover more areas of the world. It can mean more depth at the advanced level. Students in the advanced-level course can examine an idea in more detail or perhaps with some attention to broader concepts, while students in the general-level course can concentrate on more practical applications.

The need to start with what is familiar to students is a truism of good teaching and has special implications for Senior Division geography. The three courses outlined for the Secondary School Graduation Diploma are global in scope, but teachers are encouraged to make frequent reference to the local area and to Ontario. The teacher of a general-level course, especially, will often find it necessary to return to familiar experiences and to familiar places in order to develop a skill or concept before applying it to some remote area of the world.

Another truism, and not only of teaching, is that people are interested in people. The geography teacher who is looking for a motivational idea knows that a good human-interest angle is likely to catch the attention of students. In a general-level course, it is often advisable to use the human aspect of a topic as a lead-in to the physical aspects or to such abstract aspects as economic factors.

The selection and amount of written material included in a course will reflect the reading abilities of the students for whom the course is designed. Written material that deals with topics in a mature way but in simple language is not easy to find. Many teachers keep a file of passages from newspapers, magazines, and books that they have found useful in their general-level courses.*

While it is valuable to use varied audio-visual resources to augment textbooks in all courses, such resources are of particular benefit to those students with a low level of reading skills.

In presenting their work to the teacher, students taking an advanced-level course may be expected to include a well-written, suitably illustrated essay. On the other hand, students in a general-level course are likely to tackle more complex topics if they are allowed to present their work in a variety of ways. They should be encouraged to use such things as maps, diagrams, models, or dramatic scenes, and to supplement these with oral explanations.

The aims and rationales of courses in this guideline have been designed to allow for courses at several levels of difficulty. It is the responsibility of local planners to adapt them in ways that will spark the interest and extend the knowledge and skills of individual groups of students.

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*There are readability formulas that can be used to help assess the reading level of a passage. While these tests show the level of word difficulty, the teacher will have to judge the complexity of the sentence structure and of the concepts included.

EVALUATION

"The most lasting result of effective evaluation in school is an adult who can base decisions on personal standards."* The achievement of this long-term aim is only one outcome of evaluation, but it is worth while keeping in mind, especially when the pressure to produce marks for report cards threatens to reduce the evaluation process to a round of testing and grading.

The evaluative process in the classroom has several distinct stages, involving:

- assessment, or the gathering of information about student achievement or the program;
- judgement of the situation in the light of the data (Is it satisfactory or not, desirable or not?);
- diagnosis of difficulties (What caused the unsatisfactory situation?);
- further planning on the basis of the above.

Although much of the same data will be used, the evaluation of student achievement and of the geography program itself should be undertaken separately.

EVALUATION OF STUDENT ACHIEVEMENT

The most obvious purpose of this form of evaluation is to produce information, usually in the form of marks, for the students, their parents, and the school records. A more dynamic purpose is to provide information to both students and teacher so that they may assess progress, diagnose difficulties, and plan appropriate action.

If it is to produce accurate, useful information, the *evaluation* of student achievement must be clearly related to course *objectives* and *learning experiences*, and thus must be included in the design and planning of a course. Just as objectives may be modified in the course of a lesson and planned learning experiences may change as a result of the introduction of unplanned experiences by students, so too evaluation procedures cannot be precisely detailed before the lesson or unit is taught. Nevertheless, these three aspects of the learning process are such an integral part of the curriculum that to omit one from the planning stage is to run the risk of a lack of congruency between what is taught and what is evaluated; this will result in inaccurate information and frustration on the part of students and teachers.

What is to be evaluated is usually the first consideration in designing an evaluation instrument; it is here that the close relationship between evaluation and objectives is evident. In any course developed from this guideline, all levels of thinking skills will be practised and should therefore be evaluated. However, if a question asks for analysis or synthesis, and the student does not know the basic information, it will be impossible to determine whether he or she knows how to analyse or synthesize. Hence, where the item is designed to test student skill in handling data, it is often desirable to supply the data and then ask the students to process them.

It is important that students be aware of course objectives, and even be involved in setting them. It is equally important that students be aware of how they or the teacher might measure their success in achieving these objectives. It is very disheartening for a student who has been committing to memory the information obtained from a map to be faced, on a test, with a completely unfamiliar map. It is even more disheartening for a student who has been assiduously polishing his or her map and air-photo interpretation skills to be faced with a test question that reads, "Write an essay on . . .".

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*From Ontario Ministry of Education, *Evaluation of Student Achievement: A Resource Guide for Teachers* (Toronto: Ministry of Education, 1976), p. 3.

The decision on *how* to evaluate will reflect the close relationship between learning experiences and evaluation procedures. If there is considerable emphasis in the classroom on locating and selecting information, a research project is a better evaluation tool than a formal examination for that part of the course. Similarly, where group work is encouraged in the classroom, an assessment of student learning and productivity under these conditions should be included as part of the total evaluation of progress.

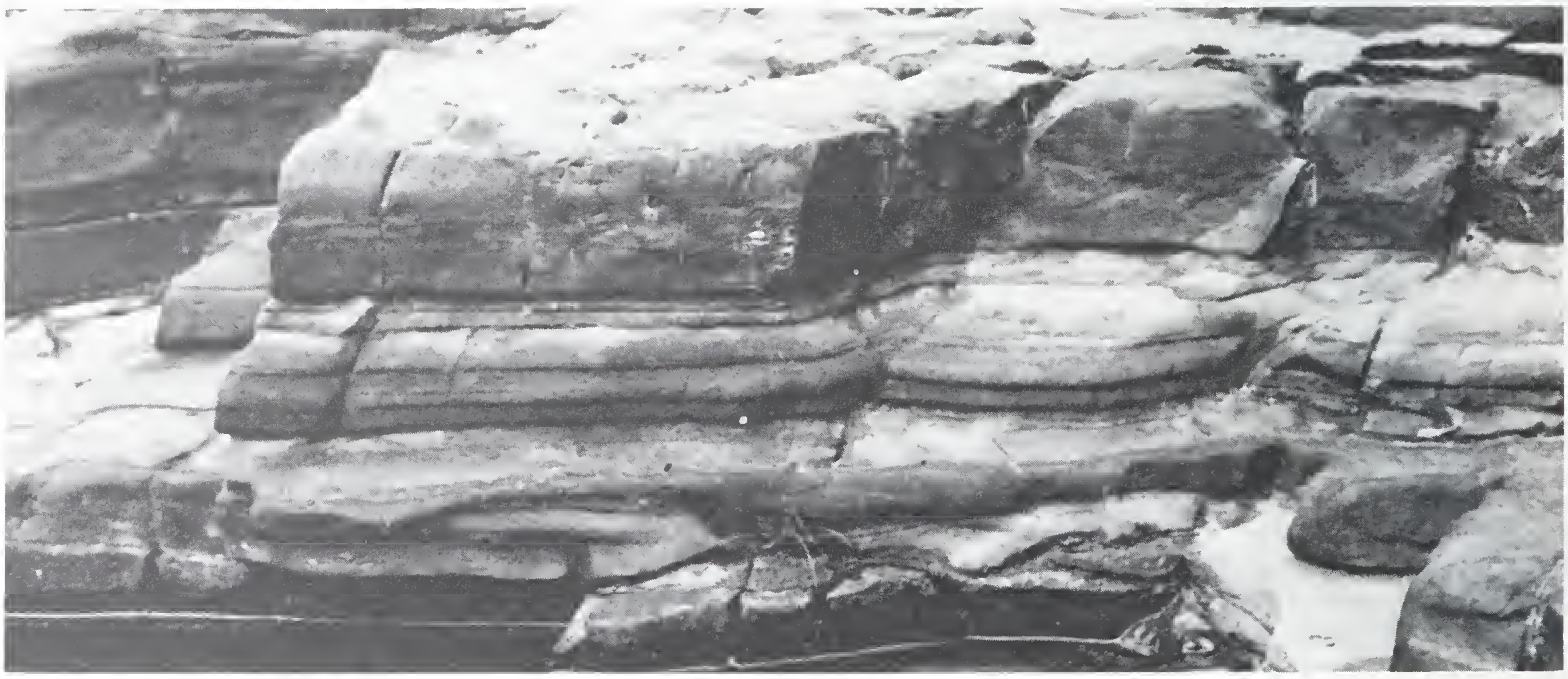
Evaluation that produces information for student records is normally confined to objectives in the area of knowledge and skill development. It is more difficult and often inappropriate to assign a mark to indicate progress towards objectives in the affective domain. Evaluation in this area needs to be handled differently, and some suggestions are given in the section "Attitudes and Values".

When the evaluation is to be used as feedback to students and teacher, it will include the many informal exchanges that take place in the classroom, in addition to the formal items from which marks and grades are generated. Thus, the teacher's response of "Good idea!" to some comment, the barely concealed yawns in the face of a poor presentation, or the observation of a group member "We're not making much progress with this assignment," are all forms of evaluation. Unfortunately, the very word "evaluation" has a negative connotation in the minds of many students. When confronted with criticism, they are liable to forget any positive comments and to receive even the most carefully framed criticism with a marked lack of gratitude. No one likes to receive negative feedback, but students are likely to be more receptive to it if they see it as only one part of an ongoing process, and especially if they can see tangible benefits resulting. Thus, students are more likely to appreciate an evaluation of the rough draft of an assignment, for example, if they know that they will have the opportunity to revise it before submitting it for marking.

An important feature of feedback is the opportunity it provides to clarify objectives. Often it is through a digression by the students that the teacher learns that the purpose of the activity was not clear.

Similarly, there should be adequate discussion of the criteria for evaluation. Otherwise, the students will be constantly trying to guess what the teacher has in mind. If they are to develop their own personal standards, students themselves should be able to state what would demonstrate progress towards the objectives.

Low productivity or poor work by an individual or group can have many causes. Lack of homework, inadequate supervision, a new teaching method, disrupted relationships in the group, a home problem, or an impending football game are only a few of the possible causes. A sensitive use of evaluation techniques will encourage student involvement in the diagnosis of strengths and weaknesses, and in the planning of remedial action so that students can become more responsible for their own learning.



COURSE AND PROGRAM EVALUATION

Evaluation of the program is required from time to time in order to assess the degree to which the stated objectives are being reached. Suggestions for the evaluation of a unit are contained in the geography guideline for the Intermediate Division, and the same questions might be asked in Senior courses:

- Were the objectives achievable through the content?
- Were the objectives sufficiently specific to be clear, and yet open enough to encourage growth?
- Was there a central focus to provide a sense of direction?
- Was there a spirit of inquiry?
- Was there an opportunity to broaden interest and pursue new ideas?
- Was it possible for students of differing abilities and interests to develop in their own particular ways?

While it is clearly the responsibility of geography teachers, individually and as a group, to make this evaluation and to plan further action, information and opinions should be invited from a variety of sources. The school administrators can supply useful data about how the geography program contributes to the aims of the school, whether the needs of a wide spectrum of the student population are being met, and how standards of achievement in geography courses compare with those in other departments. Where consultative help is available, the consultant may be able to offer ideas and information derived from his or her experiences with several schools.

However, it is from the students themselves that teachers will obtain the richest supply of data. Information derived from the evaluation of student achievement should be examined to see whether it also sheds light on the value of the course design and teaching methods. Student expressions of opinion and feeling can be sought on such questions as: Which topics are most interesting? Which exercise helps you learn best? Which concepts/skills are most difficult? A survey of such information can reveal unsuspected deficiencies in student background and indicate new directions in course structure and teaching methodology. Some teachers may wish to design a questionnaire by which all students in a course provide evaluation that can be objectively processed. Observation, by one or more teachers, of students at work reveals a great deal about the students' degree of involvement, attitudes of inquiry, and sense of direction. The data thus gathered can be used to answer such questions as:

- Do objectives, learning experiences, and evaluation procedures clearly relate to one another?
- Is the course meeting the needs, interests, and abilities of the students?
- Is there discernible growth over a period of time in knowledge and skills?
- Do the students have ample opportunity and encouragement to grow in self-reliance and self-esteem?

From time to time, course objectives should be checked against this guideline to ensure that the locally developed program provides for the achievement of the aims established for Senior geography.

Finally, after a period of testing, this guideline itself should be systematically evaluated to provide information to the Ministry of Education about any areas where modification or additional information may be needed.

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Hall, D. *Geography and the Geography Teacher.* London: George Allen and Unwin, 1976.

This book offers a clear-sighted analysis of the geography teacher as educator in the broadest sense.

Hastings, J.T.; Wardrop, J.L.; and Gooler, D. *Evaluating Geography Courses,* Technical paper no. 3. Washington, D.C.: Association of American Geographers, 1970.

This paperback looks at a framework for course evaluation; it includes student questionnaire test items and teacher interviews.

Jackson, John N., and Forrester, J., eds. *Practical Geography: Strategies for Study.* Scarborough, Ont.: McGraw-Hill Ryerson, 1974.

As the title suggests, this book contains a number of practical suggestions for the study of geography.

Kurfman, Dana G., ed. *Evaluation in Geographic Education.* 1971 Yearbook of the National Council for Geographic Education. Belmont, Calif.: Fearon Publishers, 1970.

This book consists of a series of articles that deal with the problem of evaluation at all levels in the field of geographic education. A number of practical suggestions are included, especially in the articles by Carswell, Vuicich, Hill, and Gunn.

Morrow, R., ed. *Values Education.* Toronto: Ontario Secondary School Teacher's Federation, 1975.

Values should be a part of a geography curriculum. This resource booklet will help the geography teacher understand such topics as values clarification, cognitive-moral development, and transactional analysis.

Natoli, J.S.; Cason, R.; and Castner, Jane F. *Activities Selected from the High School Geography Project.* Washington, D.C.: Association of American Geographers and the National Council for Geographic Education, 1971.

The High School Geography Project has produced a number of activities that have been found useful in Ontario schools. The project is currently being revised.

Salmon, R.B., and Masterton, T.H. *Objective Testing in Geography.* London: Heinemann Educational Books, 1974.

This book is a welcome addition to the small but growing library of books dealing with evaluation in geography.

Scarfe, Neville V. *Geography in School.* Normal, Ill.: National Council for Geographic Education, 1965.

This small booklet offers a philosophical position for geography in the schools.

Senathirajah, Nallamm, and Weiss, Joel. *Evaluation in Geography: A Resource Book for Teachers*. Toronto: Ontario Institute for Studies in Education, 1971.

The chapters in this book are grouped under three headings – "Basic Consideration in Evaluation", "Developing Teacher-Made Tests", and "Administration and Feedback". The book contains many useful ideas on defining educational objectives in geography.

Smith, David, ed. *Geography Teaching in the Seventies*. Sydney, Australia: New South Wales Geography Teachers' Association, 1976.

While most of the articles are obtained from Australian geographic educators, they will be relevant to the geography teachers of Ontario. The articles deal chiefly with the nature of geographic education.

Walford, Rex. *Games in Geography*. London: Longman, 1969.

This small paperback describes the theory underlying the use of games in the classroom and offers six examples of games in geography. Some classroom experiences with games are described.

Walford, Rex, ed. *New Directions in Geography Teaching*. London: Longman, 1973.

This series of articles is especially useful in giving direction to program planning and curriculum development. Articles by Gould and Thomas outline the New Geography, while other articles describe the most recent thinking in the traditional areas of geographic education.

Williams, M., ed. *Geography and the Integrated Curriculum*. London: Heinemann Educational Books, 1976.

This collection of twenty-eight articles focuses on the fundamental question: "Can a convincing case be made for the inclusion of geography as a separate subject in the curriculum of all pupils in secondary schools?"

Willmer, John E., ed. *Africa: Teaching Perspectives and Approaches*. An N.C.G.E. Pacesetter Book. Tualation, Ore.: Geographic and Area Publications, 1974.

While this book focuses on Africa, it illustrates a variety of teaching techniques and approaches to curriculum development.

Journals

The Classroom Geographer. 3 Wensleydale, Lutton, Bedfordshire, England.

This is a magazine for those who wish to keep abreast of new developments in methods and techniques in the teaching of geography.

Geographical Education. Journal of the Affiliated Associations of the Australian Geography Teachers' Association, P.O. Box 63, Camperdown, N.S.W. 2050, Australia.

Published once a year, this journal contains excellent articles on geographic education.

Geoscope. Provincial Association of Geography Teachers, Quebec. Box 32, Station NDG, Montreal, Quebec.

Geoscope, like *The Monograph*, contains articles and features of specific interest to elementary and secondary school teachers.

Journal of Geography. National Council for Geographic Education, Central Office, University of Houston, Houston, Texas 77004.

This monthly journal (nine times a year) contains articles on geographic education that are of interest primarily to elementary and secondary school teachers. The articles often deal with geography as a discipline and as a school subject.

The Monograph. Ontario Association for Geographic and Environmental Education, Jarvis Collegiate Inst., 495 Jarvis St., Toronto M4Y 2G8

The Monograph is published four times yearly and contains articles and features of specific interest to Ontario teachers.

Teaching Geography. The Geographical Association, 343 Fulwood Road, Sheffield S10 3BP, England.

This new journal is published by the British Geographical Association in addition to their journal *Geography*. This journal will be useful for teachers who are designing curriculum and looking for new ideas in materials and teaching strategies.

THE NATURE OF GEOGRAPHY

Books

Adams, W. Peter, and Helleiner, F.M., eds. *International Geography: 1972*. 2 vols. Published for the 22nd International Geographical Congress. Toronto: University of Toronto Press, 1972.

These volumes contain the papers presented at the International Geographical Congress held in Montreal in 1970. In addition to papers on all aspects of geography, there are a number of essays on geographic education.

Broek, J.O.M. *Geography: Its Scope and Spirit*. Columbus, Ohio: Charles E. Merrill, 1965.

This small book outlines a brief history of geography and summarizes various contributions to the study of the nature of geography.

Chorley, Richard J., ed. *Directions in Geography*. University Paperback series. London: Methuen, 1973.

This small paperback is a collection of essays on the changing nature of geography.

Chorley, Richard J., and Haggett, P., eds. *Frontiers in Geographical Teaching*. 2nd rev. ed. London: Methuen, 1970.

The essays contained in Part I of this book deal with changes in the philosophy of geography. Other sections deal with trends in the various fields of geography.

Harvey, David. *Explanation in Geography*. London: Edward Arnold, 1969.

Throughout this book, Harvey points out the way in which the geographer looks at the world and in particular how the geographer utilizes data from other disciplines.

Taaffe, E.J., ed. *Geography*. Englewood Cliffs, N.J.: Prentice-Hall, 1971.

This short paperback describes the scope and content of geography.

THE FIELD OF GEOGRAPHY

Books

Abler, R.; Adams, J.; and Gould, P. *Spatial Organization: The Geographer's View of the World*. New Jersey: Prentice-Hall, 1971.

This book deals with the geographer's conceptual view of the world and his or her varied techniques of analysis. Part I includes a section that presents a case for geography as a science.

Barlow, M.H., and Newton, R.G. *Patterns and Processes in Man's Economic Environment*. Melbourne, Australia: Angus and Robertson, 1971.

This is a rather traditional book on economic geography which includes many ideas that could be developed in the Ontario geography curriculum.

Broek, J.O., and Webb, J.W. *A Geography of Mankind*. New York: McGraw-Hill, 1973.

This book provides an excellent background to the entire field of human geography.

Buttimer, A. *Values in Geography*. Resource Paper no. 24. Washington, D.C.: Association of American Geographers, 1974.

This resource paper examines the interests that geography students have in the area of values. While it is a philosophical statement, it is useful as a rationale for introducing values into the geography program.

Byrne, F. *Earth and Man*. Dubuque, Iowa: W.C. Brown, 1974.

This book is about the earth and how people relate to it. While the emphasis is on physical geography, humans are always related to the study.

Carter, G.F. *Man and the Land – A Cultural Geography*. New York: Holt, Rinehart and Winston, 1968.

This book gives a comprehensive treatment of cultural geography across the world.

Conkling, E.C., and Yeates, M. *Man's Economic Environment.* Toronto: McGraw-Hill Ryerson, 1976.

This book follows a pattern-theory examination of the economic geography of the world. It contains many good Canadian examples.

De Blij, Harm. *Human Geography: Culture, Society and Space.* New York: John Wiley & Sons, 1977.

De Blij deals with the broad headings of cultural geography. He uses a variety of examples from across the world in this well-illustrated and up-to-date book.

Dicken, S.N., and Pitts, F.R. *Introduction to Cultural Geography – A Study of Man and His Human Environment.* New York: Ginn, 1970.

This is a human geography book which draws examples from around the world to illustrate the concepts developed. This easily read book gives a good grasp of the concepts involved in cultural geography.

Dohrs, F., and Sommers, L.M., eds. *Cultural Geography: Selected Readings.* New York: T. Crowell, 1967.

This book of thirty-six readings is organized under eight general headings and gives the reader a broad look at cultural geography. The articles are written by leaders in the field.

Erlich, P.R.; Erlich, A.H.; and Holdren, J.P. *Human Ecology: Problems and Solutions.* San Francisco: Freeman, 1973.

This book will give the teacher interested in world ecological problems a framework to develop a number of ideas on the ecological problems facing the human race.

Griffin, Paul, ed. *Geography of Population – A Teacher Guide.* Belmont, Calif.: Fearon Publishers, 1971.

This 1970 yearbook of the National Council for Geographic Education includes eighteen essays dealing with the study of population. This book will be useful for teachers in planning all aspects of their geography programs, as issues on population are found in many courses.

Haggett, Peter. *Geography: A Modern Synthesis.* London: Harper & Row, 1972.

Haggett attempts to bring to bear the full range of new concepts and techniques upon the full breadth of geography. The spatial, ecological, and regional traditions, the general and the particular, the theoretical and the concrete are all here, cast within a new mould and viewed from new perspectives.

Hare, F.K., and Hewett, K. *Man and Environment – Conceptual Frameworks.* Resource Paper no. 20. Washington, D.C.: Association of American Geographers, 1973.

This resource paper develops the conceptual frameworks of man and the environment.

Hare, F.K., and Jackson, C.I. *Environment – A Geographical Perspective.* Geographical Paper no. 52. Ottawa: Canada Department of the Environment, 1972.

This paper outlines the role of geography in the broad area of environmental studies. The concepts presented will be useful in developing courses with an environmental emphasis.

Kolars, J., and Nystuen, J. *Geography – The Study of Location, Culture and Environment.* New York: McGraw-Hill, 1974.

This is a general geographical study of people and their environment from a spatial point of view.

McNee, R.B. *A Primer on Economic Geography.* New York: Random House, 1971.

This small paperback gives an excellent background to the field of economic geography. McNee outlines the two major concepts of economic geography as industrialization and urbanization.

Meadows, D.L. *The Limits to Growth.* New York: Universe Books, 1972.

This small book by the group of the Club of Rome provides a framework to look at some of the world's major problems.

Morrill, R.L. *The Spatial Organization of Society.* Belmont, Calif.: Wadsworth, 1970.

The concepts and techniques included in this book are quite advanced; however, the book is useful in arriving at an understanding of spatial analysis.

Paterson, J.H. *Land, Work and Resources – An Introduction to Economic Geography.* London: Edward Arnold, 1972.

While the title of this book suggests a traditional economic geography, Paterson approaches economic geography from an historical context and in doing so provides a wealth of ideas for curriculum planning.

Saarinen, T.F. *Perception of Environment.* Resource Paper no. 5. Washington, D.C.: Association of American Geographers, 1969.

This paper introduces the geographer to the study of perception and points out the ways in which the geography teacher can involve students in activities involving perception.

Souza, A., and Porter, P. *The Underdevelopment and Modernization of the Third World.* Resource Paper no. 28. Washington, D.C.: Association of American Geographers, 1974.

This paper outlines the nature of underdevelopment and its relationship to modernization. The booklet also deals with the nature and causes of underdevelopment.

Stanford, Q.H., ed. *The World's Population: Problems of Growth.* Toronto: Oxford University Press, 1972.

This is a carefully chosen and interesting collection of readings dealing with all aspects of the world's population including the economic, cultural, and political implications.

Swan, J.A., and Stapp, W.B., eds. *Environmental Education.* New York: John Wiley & Sons, 1974.

This is a series of articles by leading environmental educators, which is useful for any teacher involved with environmental studies. Teachers will find many examples of activities that will involve the students in the local environment.

Tuan, Yi-Fu. *Man and Nature.* Resource Paper no. 10. Washington, D.C.: Association of American Geographers, 1971.

This paper deals with the "Nature of Man" and "Man and Nature". It is primarily concerned with the complex interrelationships that develop as people interact with their environment.

Wagner, Philip. *The Human Use of the Earth.* New York: The Free Press, 1964.

This is an examination of the interaction between humans and their physical environment. This book gives the reader a good grasp of the nature of human geography.

Yeates, M. *Main Street: Windsor to Quebec City.* Toronto: Macmillan of Canada, 1975.

This book examines the development of urbanism between Windsor and Quebec City, and the concentration of economic activities in Southern Ontario and Southern Quebec.

Yeates, M., and Garner, B.J. *The North American City.* New York: Harper & Row, 1971.

This book addresses itself to spatial arrangements and contributes to the understanding of the role of settlement geography in human geography.

Zelinsky, W. *The Cultural Geography of the United States.* Englewood Cliffs, N.J.: Prentice-Hall, 1973.

This small paperback provides an excellent background to the field of cultural geography.

Journals

Annals. Association of American Geographers, 1146 Sixteenth Street N.W., Washington, D.C. 20036.

Cahiers de géographie du Québec. Presse Université Laval, c.p. 2447, Ste Foy, Quebec G1K 7R4.

Canadian Geographer. The Canadian Association of Geographers, McGill University, Montreal, Quebec.

Economic Geography. Clark University, Worcester, Mass. 01610.

The Geographical Journal. The Royal Geographical Society, London SW7 2AR, England.

Geographical Review. The American Geographical Society, Broadway at 156th Street, New York, N.Y. 10032.

Geography. Journal of the Geographical Association, 343 Fulwood Road, Sheffield S1O 3BP, England.

The Professional Geographer. Association of American Geographers, 1146 Sixteenth Street N.W., Washington, D.C. 20036.

Transactions. The Institute of British Geographers, 1 Kensington Gore, London 5W7 2AR, England.

These journals contain a variety of articles on research in geography. Many articles look at the nature of geography, and others look at the scope of a particular area of geography.

SELECTED ARTICLES

Balchin, W.G.V. "Graphicacy". *Geography* 57 (July 1972): 185-95.

Baleman, R. "Physical Geography in the Fourth Year". *Teaching Geography* (November 1975): 61-63.

Blaut, J.M., and Stea, David. "Studies of Geographic Learning". *Annals of the Association of American Geographers* 61 (June 1971): 383-93.

Browning, C.E. "The Question – 'But Is It Geography?' ". *The Professional Geographer* XXVI (May 1974): 134-39.

Bunge, W.W. "The Geography". *The Professional Geographer* XXV (November 1973): 331-37.

Cromarty, D. "Reconstructing the Syllabus". *Teaching Geography* 1 (April 1975): 28-31.

Davey, C; Emery, J.S.; and Milne, A.K. "Environmental Education: The Geography Teacher's Contribution". *The Journal of Geography* 73 (April 1974): 8-18.

Education Committee, The Geographical Association. "Geography in the School Curriculum: A Contribution to the Great Debate". *Teaching Geography* 3 (November 1977): 50-51.

Edwards, K.E. "Sixty Years After Herbertson: The Advance of Geography as a Spatial Science". *Geography* 59: Part I (January 1974): 1-9.

Fisher, Charles A. "Whither Regional Geography?" *Geography* 55 (November 1970): 373-89.

Ford, L. R. "The Urban Skyline as a City Classification System". *The Journal of Geography* 75 (March 1976): 154-64.

Frances, L. E. "What Do We Mean When We Say We Are Teaching Concepts in Geography?" *Geographical Education* 2 (1975): 315-22.

Frey, A.E. "The Teaching of Regional Geography". *Geography* 58 (April 1973): 119-28.

Gerlach, R.L. "Our Cultural Roots: A Classroom Exercise in Historical Geography". *The Journal of Geography* 75 (February 1976): 82-89.

Gould, P.R. "The New Geography". *Harper's Magazine*, March 1969, pp. 91-100.

Grenyer, N. "An Introduction to Recent Developments in Geography Teaching: An Annotated Bibliography". *Geography* 57 (November 1972): 333-36.

Heamon, A.J. "The Maturation of Spatial Ability in Geography". *Educational Research* 16 (November 1973): 63-66.

Helburn, Nicholas. "The Educational Objectives of High School Geography". *The Journal of Geography* 67 (May 1968): 274-81.

Hones, G.H. "Objective Testing in Geography". *Geography* 58 (January 1973): 29-37.

James, Preston E. "On the Origin and Persistence of Error in Geography". *Annals of the Association of American Geographers* 57 (March 1967): 1-24.

James, Preston E. "The Significance of Geography in American Education". *The Journal of Geography* 68 (November 1969): 473-83.

Knibbs, H. "Urban Fieldwork with a Sixth Form". *Teaching Geography* 1 (January 1976): 111-16.

Kohn, C.F. "1960's: A Decade of Progress in Geographical Research and Instruction". *Annals* 62 (June 1970): 211-19.

Kostbade, J.T. "The Regional Concept and Geographic Education". *The Journal of Geography* 66 (January 1968): 6-12.

Krueger, R.R. "Regionalism in Canada". *The Monograph*, no. 4 (1975), pp. 17-21.

Long, Molly. "The Interests of Children in School Geography". *Geography* 56 (July 1971): 177-90.

Lukerman, F. "Geography as a Formal Intellectual Discipline and the Way in Which It Contributes to Human Knowledge". *Canadian Geographer* VIII (1964).

Marsden, W. E. "Analysing Classroom Tests in Geography". *Geography* 59 (January 1974): 55-64.

Meierding, Barbara S. "Individualized Learning in an Open Geography Classroom". *The Journal of Geography* 72 (December 1973): 31-34.

Monk, Janice J. "Preparing Tests to Measure Course Objectives". *The Journal of Geography* 70 (March 1971): 157-62.

Niash, M. "The Development of Children's Thinking in School Geography". *Teaching Geography* 3 (November 1977): 81-84.

Nicholls, A. D. "Environmental Studies in Schools". *Geography* 58 (July 1973): 197-206.

Pattison, William D. "The Four Traditions of Geography". *The Journal of Geography* 63 (May 1964): 211-16.

Priddle, G.B. "How Geography Became Spatial and Found Happiness". *Ontario Geography*, no. 6 (1971), pp. 3-8.

Robinson, J. L. "A New Look at the Four Traditions of Geography". *The Journal of Geography* 75 (December 1976): 520-30.

Scarfe, N. V. "Games, Models and Reality in the Teaching of Geography in School". *Geography* 56 (July 1971): 191-205.

Shortle, D. "Geography as a Discipline of Knowledge: Some Curriculum Implications". *Geographical Education* 2 (1975): 281-303.

Simons, M. "What Are Geographers Doing?" *Universities Quarterly*, Winter 1969, pp. 80-90.

Slater, F. "Questions and Answers: Implications for Geographical Education". *Geographical Education* 2 (1975): 265-79.

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Steel, R. W. "The Third World: Geography in Practice". *Geography* 59: Part 3 (July 1974): 189-207.

Stone, K. H. "Geographical Aspects to the Limits to Growth Concepts". *Professional Geographer* 28 (November 1976): 336-40.

Thomas, B. "Educational Objectives and 'O' Level Geography". *Teaching Geography* 1 (January 1976): 130-33.

Thomas, P. R. "Education and the New Geography". *Geography* 55 (November 1970): 274-80.

Walker, M. J. "Changing the Curriculum". *Teaching Geography* 1 (April 1976): 163-65.

Warman, Henry J. "Geography in the Elementary Schools of the United States". *The Journal of Geography* 67 (May 1968): 262-73.

White, G. F. "Geography and Public Policy". *The Professional Geographer* XXIV (May 1972): 101-04.

Wise, M. J. "Environmental Studies: Geographical Objectives". *Geography* 58 (November 1973): 293-300.

———."Geography in Universities and Schools". *Geography* 62: Part 4 (November 1977): 249-58.

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Wright, D. R. "Experience-Centered Geography Teaching". *Geography* 58 (January 1973): 38-42.

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